

# BUTANE-PROPANE

## News

25¢

When Susie  
walked out...

my own maid now. When  
cook left us for a war plant  
took over on the kitchen.  
For the first time in years,  
doing all the cooking. I thor-  
enjoy it—and I've had no  
complaints from an extremely  
"conscientious" family!

Grand Range is my best ally.  
20 years old now, but still  
strong. You can tell it was  
built in the first place. There's  
a lot of good service in it yet—  
and the war, I'm going to get  
a new range available—and  
be sure it will be a Grand.



Grand

## Grand Gas Ranges

GRAND HOME APPLIANCE COMPANY  
CLEVELAND, OHIO

WHEN PEACE COMES  
IT WILL BE GRAND

JANUARY, 1944

In Two Sections—Part I

# Hackney Cylinders

## Help the Railroads in Wartime, Too

*Jan. - Dec. 1944*

**T**HE railroads are another war industry which is being served by LP-Gas. It is used to maintain constant temperature in insulated freight cars for the transportation of perishable food products in cold weather. In railroad shops it is used for maintenance and repair of equipment. It is also employed for cutting of steel and in the heat treatment of various metals. On some railroad dining cars, propane-butane gas is used as a fuel for cooking. It makes an economical and efficient fuel for the operation of air conditioning systems on passenger railroad cars. Hackney Cylinders, by providing a dependable and efficient means of storing and transporting propane-butane, are playing an important part in this and many other industries served by LP-Gas.



*R V. 6, 1940, 1-12*

Long life is a built-in characteristic of Hackney Cylinders. Pressed Steel Tank Company's process of cold drawing provides uniform side wall thickness and also acts as a check on the quality of the steel itself. In designing and constructing Hackney Cylinders, the seam area is reduced to a minimum. There is only a single, circumferential body weld. Welding is X-ray controlled. After complete fabrication, Hackney Cylinders are heat-

treated, which further improves their physical properties.

Today, Pressed Steel Tank Company Cylinders are making vital contributions to many war industries. Consequently, there is no halt to the skill, knowledge, imagination and research in product improvement which have built such a widespread preference in industry. You are assured that these qualities are continuing in Hackney Cylinders.



## Pressed Steel Tank Company

GENERAL OFFICES AND FACTORY • 1487 SOUTH 66th STREET

Milwaukee, Wisconsin

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AND SOLIDS**



Landships . . . Bound For Their  
Port O' Call *On Time*



*Anchorgas*

BUTANE — PROPANE

**ANCHOR**

*Petroleum Company  
Tulsa, Oklahoma*



# BUTANE-PROPANE *News*



Reg. U. S. Pat. Off.

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WESTERN METALS.



BC

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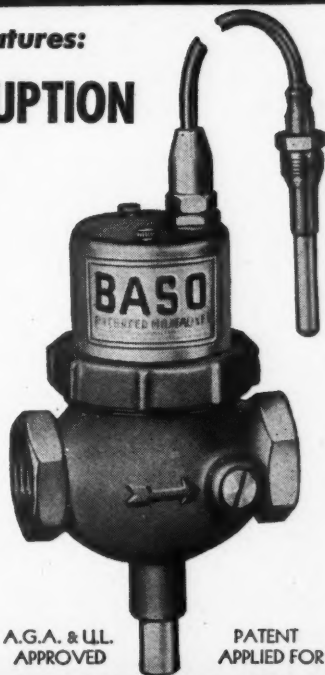


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JANUARY-1944

# LETTERS

Gentlemen:

We would like to find out what the average consumption of propane for domestic users is per year.

What we are trying to get at is how many times a cylinder is used per year. In other words, we read in your magazine that the average domestic consumption is about 3.6 100-lb. cylinders per year. If these were all two-tank systems, that would mean each cylinder was filled 1.8 times per year, and that would be the turn-over of the cylinder.

Do you have any authentic information that has been published? We would appreciate receiving it as quickly as possible.

H.M.W.

Pennsylvania

Of course, there must be an average but any estimate would be only a guess inasmuch as domestic consumption varies with price of fuel as well as availability of secondary fuels in a community, such as wood, coal or oil.

In the November (1943) issue of BUTANE-PROPANE News, there is a story regarding a survey of usage of LP-Gas in the San Joaquin valley district of California. You will find the article starting on Page 35. This survey was made under the auspices of county war boards and LP-Gas dealer associations to present to the Petroleum Administration for War to show the urgent need for LP-Gas by farmers in that locality. It seems to be the most authentic survey that has been made and while it might not be a criterion for other districts it furnishes a basis upon which to judge consumption.—Ed.

Gentlemen:

I have a heavy boiler plate tank that I want to mount on a truck to transport a mixture of propane and butane gases.

I would like for this tank to stand a 200-lb. working pressure, if possible. Would insulating the tank help? Would putting heavy bands around it help?

I am in need of this tank and, of course, new tanks cannot be bought at this time.

H.C.

Missouri

We think you would be taking too much of a chance in using your present truck. All tanks for LP-Gas must conform to the specifications of the National Board of Fire Underwriters as contained in their pamphlet No. 58. This gives all specifications necessary to meet.

No doubt there is a state code in Missouri whose requirements also would have to be met. If there is no code so covering your case for the state of Missouri, then we suggest that you obtain a copy of one from Arkansas or any other nearby state, so that you will be sure to be on the side of safety.

Regulations would not permit you to carry higher than allowed pressures, and neither would heavy steel bands be a guarantee against rupture. Tanks that carry high pressure gases and liquids are usually made for specific purposes.

Why don't you apply to the War Production Board for a permit to purchase a new tank? If your need is an essential one, it will be given every consideration.—Ed.

Gentlemen:

One of our clients who is now making tank and transport truck equipment for the petroleum industry is interested in the after-the-war possibilities of making similar tanks for the liquefied petroleum gas industry. In our preliminary examination of the market, we find that in many sections of the country, at least, the trend is toward high pressure tanks and away from low pressure butane tanks and

equipment. This manufacturer is in the middle west and is in a position to serve the middle west and southwestern markets.

In your opinion, do you believe that the trend in that area is going to be toward higher pressure equipment after the war? We would also like your opinion as to the competitive aspects of the business, that is, whether tanks will likely be built by a comparatively few well established manufacturers or whether the market will be filled with tanks and truck tanks made and marketed by small manufacturers.

We would also like to know if you think the trend is going toward moving this gas to distributors by railroad car rather than by truck; and that these distributors will put the gas in cylinders and market it that way rather than in bulk tanks.

C.N.A.

New York

We think quite definitely that the trend is toward the manufacture of higher pressure tanks and away from the low pressure tanks which have been limited to the handling of butane gas in the past. When high pressure vessels are available they may be used for either butane or propane. Since the war started there have been numerous instances when, due to lack of transportation facilities, LP-Gas dealers would have gladly purchased propane instead of the butane they may have been customarily handling were it not for the fact that their transport equipment or their storage tanks had been constructed for low pressures. So many vital uses for butane have developed, such as its need for the manufacture of high-octane gasoline and synthetic rubber, that some authorities believe the LP-Gas industry will be influenced to use less butane in the future and more propane, the latter requiring higher pressure tanks.

We assume that you know the relative characteristics of the two fuels. At the present time, propane is used more largely in geographical areas where low temperatures exist in the winter, and butane is sold largely in the South and warmer states where temperatures do not often go below the freezing points. The butane containers cost less because of their lighter construction.

There has been a limited number of pressure

vessel manufacturers in the past but undoubtedly that number will be enlarged after the war. It is impossible to say whether or not the market will be dominated by large companies or if there will be many small manufacturers.

There is a very decided trend among distributors and large dealers to purchase their own transport equipment because the war has proven the inadequacy of railroad tank cars to keep them supplied at all times. Privately owned transport tank trucks not only can supply their needs as demanded, but at a lower cost, probably, and gives them additional flexibility of equipment, for when necessity arises these trucks can be devoted to either storage or delivery in addition to their present equipment. There will always be a demand for gas in cylinders as well as underground tanks in our opinion.—Ed.

Gentlemen:

Please advise me as to the difference between propane tanks made according to the California code and those of ICC standard.

Two different houses wrote that they could not supply the ICC standard but could furnish tanks of the California code. Is it permissible to use these tanks in my business?

G.A.Y.

California

The California code provides that tanks shall conform to ASME specifications, and by special permission tanks can be made in California if API-ASME code rules are followed.

ICC tanks are for use in interstate commerce only and cannot be used for storage unless the containers hold no more than 30 gallons each. It is permissible, of course, for you to use storage tanks in California if they conform to the ASME code.

You would be interested in a chapter in our Handbook BUTANE-PROPANE Gases entitled "Storage Tank and Pressure Vessel Design" which discusses all the details of various tanks and codes. You may be particularly interested in Page 117 which enumerates safeguards that should be followed in purchasing pressure vessels.—Ed.

● BUTANE-PROPANE News welcomes letters from our readers, but it must be understood that this magazine does not necessarily concur in opinions expressed.—Editor.



**JAMES E. PEW**  
**Guest Editor for January**

# Our Team

By JAMES E. PEW

Director, Natural Gas and Natural Gasoline Division,  
Petroleum Administration for War, Washington, D. C.

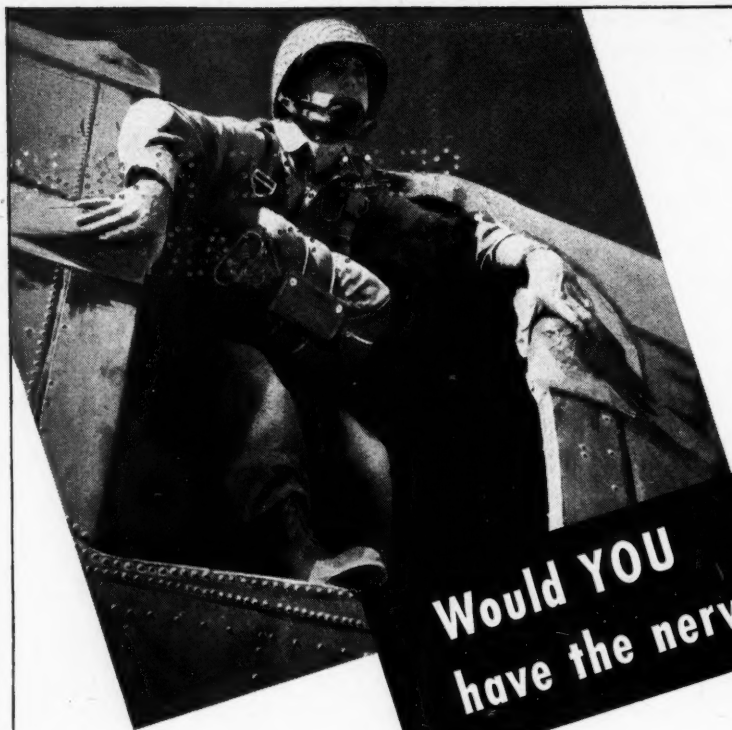
**T**HE liquefied petroleum gas industry is to be highly commended for cooperation with its Government during war-time restrictions. Your Limitation Order, L-86, became necessary twenty-one months ago due to the shortage of critical materials and, of even greater importance, shortage of supply and transportation facilities.

Some of that material, and LP-Gas itself, diverted from normal peace-time expansion was quite naturally used in important war-time installations. As you know, many of the largest new war plants are located either beyond the city gas mains or in industrial centers where the city gas companies lacked sufficient capacity to assume the large new loads. In these war plants millions of gallons of LP-Gas are used each month for special processing where no other fuel can be substituted for the required gaseous fuel. However, it should be remembered that the difference in tonnage of critical material normally used by the industry prior to the war and that much smaller amount installed for a like period under L-86 has been diverted to thousands of guns, jeeps, landing barges, and all other material necessary to fight total war. This tonnage runs well up into six figures and is by no means an insignificant contribution on the part of your industry.

Also, the restriction of normal expansion has made possible the supply of large quantities of LP-Gas for direct military uses and for components of vital war products. This has been accomplished in spite of ever-increasing transportation difficulties.

The Petroleum Administration for War has always looked to representative members of all phases of the petroleum industry for advice and recommendation concerning its many war-time problems. Last summer nominations were made by the LP-Gas industry from which members were selected for your five district sub-committees. They are now functioning, and have made excellent recommendations.

Although LP-Gas problems today are more serious than ever before, I have every confidence in the continued cooperation of the industry, necessary to effect their solution.



**Would YOU  
have the nerve?**

How'd you like to "sweat it out" with the Paratroopers? . . . step off into space on a combat mission? ★ Perhaps you, and we, could do it *if we had to*. But all that Uncle Sam asks of *us* is to buy more War Bonds, sacrifice a few comforts and produce for

Victory! ★ The PAYNE plant has concentrated on war production for two years. But PAYNE Gas Furnaces will be back . . . surpassing even their pre-war standards of design, quality and performance. *You can count on that.*



**PAYNEHEAT**

NEARLY 30 YEARS OF LEADERSHIP



**Payne** FURNACE & SUPPLY CO., INC., BEVERLY HILLS, CALIFORNIA



# MAINLY BEYOND THE MAINS

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By ELLIOTT TAYLOR, Washington Editor

## Outlook for 1944

**W**HILE it is true that the first of the year is universally honored as a time for mutual congratulations and resounding resolutions of high accomplishments anticipated for the next 12 months, we believe that on the first of this year, 1944, the Liquefied Petroleum Gas Industry needs to indulge in no windy tributes to its own accomplishments. The record speaks for itself.

Our guest editor for the month, James E. Pew, Director of the Natural Gas and Natural Gasoline Division of PAW, hands the industry all of the encomiums that any trade group could ask from the government administrator responsible for its wartime performance. Mr. Pew's observations are only an expression from one side of the mutual confidence and cooperation that have been built up in the last seven months.

In January, 1943, we wrote, "It is our earnest hope that the new order (creating PAW) will provide the impetus for . . . transfer of all jurisdiction over LP-Gas as a fuel from the WPB into the capable and informed offices of PAW." That transfer

was accomplished in May and both industry and government experience in the time that has elapsed since then has testified to the soundness of the move.

## Looking Back at '43

Our own annual survey of the marketed production of LP-Gas on the pages that follow contains ample justification for any reasonable amount of optimism concerning the future that we may care to entertain. Despite increasing diversions of butanes and isobutanes into isomerization and alkylation processes, and despite rigidly enforced restrictions on new installations of any kind whether domestic, industrial or military, the marketed consumption of LP-Gases for 1944 has increased by approximately 20% over the output for last year. Accustomed in the past to percentage increases of as high as 40%, it is true that a mere 20% for the LP-Gas industry seems by comparison almost a period of stagnation. Yet in back of this output there are expanded plant capacities capable of delivering almost unlimited quantities of butane and propane into normal commercial and domestic channels once war-

time limitations of the use of critical materials are modified.

It is not within our province to say that during the coming year they will be greatly modified, but certainly some easing of installation restrictions is within the range of strong possibilities if the fortunes of war in the European theater continue to favor the Allies. It is not too much to hope that before the end of 1944 LP-Gas may begin to resume the cultivation of at least a part of its new market that has been deferred for almost two years. Manufacturers of gas appliances are presently entertaining hopes that with the second quarter of 1944 they may be permitted to resume some production of other than the deservedly unpopular Victory models. After January we anticipate that the transportation bottleneck will become less acute, another vital factor on which the resumption of any normal LP-Gas expansion depends.

We don't know how the globalony experts in the capitol are getting along with their schemes to reform and remodel the war-worn world, but we look forward with a sort of savage satisfaction to the outside chance that come November they may be ordered by the voters back to the pastoral delights of country squirehood.

Taking it all in all, we don't see how 1944 can be so bad. In

fact, right now we are more than anxious to watch and help it unfold its fascinating possibilities.

## Appliance Design

Having clung for years to the old fashioned and sentimental belief that a gas range should look like a gas range, and that it should be arranged so that it would be easy to cook on, we were heartened to have F. X. Mettenet, vice president of The Peoples Gas Light and Coke Co., Chicago, disclose that Chicago and other Illinois housewives have expressed a preference in which 53% of them want their new range to have a medium or a high oven.

In discussing the Chicago findings, William Potter, of Elizabethtown, N. J., advised that in a similar survey conducted over the New Jersey system, the preference figures were in just about the same proportions as those for Illinois.

Without doubt users of appliances burning LP-Gas will have preferences comparable to those burning natural and manufactured gas.

Further light will be shed on this question of appliance design when a questionnaire being sent out by the AGA Postwar Planning Committee has been returned and tabulated.

Before making recommendations to manufacturers, the committee aspires to have opinions representing at least 70% of the meters of the industry.

# 1943 In Review Total Volume Up 20 % Industrial Gain 38 %

By ELLIOTT TAYLOR

Washington Editor, BUTANE-PROPANE News

**T**HE great Moloch War, now gorging itself into what we trust will be an early case of acute indigestion on all of the civilizing output of all of the civilized world, continued with appetite and capacity for petroleum products unabated during the year 1943. The impact of this demand was reflected with greater significance than at any time since the start of our war preparation and war waging activities in the mounting sales of liquefied petroleum gases for industrial and standby uses, and the almost static condition of the domestic consumption market.

The estimated sales of LP-Gas for 1943 totaled 701,999,000 gallons!

Analyzing such figures as are available in these amazing days when even government questionnaires turn up with answers as fanciful as the cryptic conclusions of the Ouija board, we are presented with certain irrefutable facts about the trends in industry sales.

In the first place, more LP-Gas

• For four years Mr. Taylor has prepared for the January issues of BUTANE-PROPANE News an exclusive survey on the progress of the liquefied petroleum gas industry during the preceding 12 months. Every year it has checked closely with the official figures of the U. S. Bureau of Mines, also prepared annually but not released until several months later.

The material in the accompanying article is based upon information obtained from a wide range of authoritative sources that have proven to be remarkably accurate. It is gratifying to know how importantly liquefied petroleum gas has served the war effort in industry and that it continues to reflect a phenomenal growth in spite of the handicaps which prevented the customarily high percentage of domestic expansion.

—Editor.



ELLIOTT TAYLOR

was made and sold into regular markets as butane and propane and mixtures of the two than in any year in the history of the industry. And the absolute gain in gallonage was greater in the period 1943 as compared with 1942 than it was for 1942 as compared to 1941. (See Table 1.) The percentage of increase over previous years, however, shows a continuation of the trend that set in in 1942, when the gain over 1941 dropped to 26.5%; the figures for the year just closed compared to those of 1942 show that the percentage gain over last year was only 19.9%. This is the lowest percentage increase over a previous year that the industry has experienced since 1938.

Such percentage increases are only to be expected, however, even

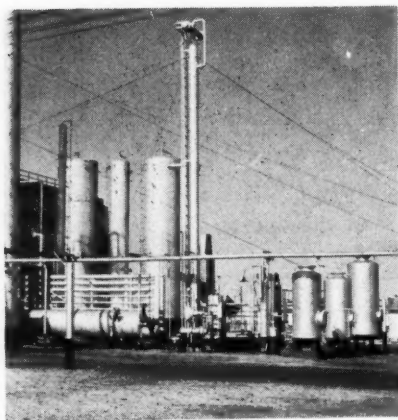
**TABLE 1. ESTIMATED MARKETED PRODUCTION OF BUTANE, PROPANE, AND BUTANE-PROPANE MIXED GASES 1943**

	1942	1943	Increase or Decrease %
New domestic installations by dwelling units added .....	60,000*	39,500	D 34.1
Total domestic installations in service at the end of year.....	1,840,000*	1,879,500	2.14
Sales, gallons for domestic consumption.....	299,559,000†	306,579,000	2.3
Sales, gallons for industrial, internal combustion engine, gas manufacturing, standby and miscellaneous .....	285,881,000†	395,420,000	38.2
Total sales, gallons.....	585,440,000†	701,999,000	19.9

\* Butane-Propane News estimate. † Bureau of Mines Annual Report.

in normal years; for as the total sales go up year by year increased distribution would have to go into astronomical figures if annual percentage increases over every preceding year's output were to be maintained.

New domestic installations, by dwelling units, added during 1943



Part of fractionating plant in New Mexico oil field where  $H_2S$  is removed from LP-Gas by fractionation.

are off sharply from the 1942 totals, with only an estimated 39,500 new services connected during the 12 months, compared to 60,000 such services going in in 1942. This is a decrease of 34.1% over last year's new users, but last year's per cent decline over 1941 in new jobs was 85%, which in a negative sort of way may be regarded as a ray of good cheer. Included in our domestic figures for both this year and last are the estimated number of dwelling units in defense housing installations, and since new projects in this class using either butane or propane have declined during the year, a considerable amount of the difference may be attributed to the completion of much of the new construction in government sponsored war time shelter.

#### Domestic Accounts: 1,879,500

The question of the total number of domestic installations in service has always been regarded as debatable in the industry, but we have seen no evidence to indi

**TABLE 2. RELATION OF BUTANE TO PROPANE SALES, INCLUDING QUANTITIES OF EACH SOLD IN MIXTURES. PENTANE SALES DISREGARDED EXCEPT IN TOTALS**

<i>(In Gallons)</i>					
<i>Year</i>	<i>Total Gases Sold</i>	<i>Butane</i>	<i>%</i>	<i>Propane</i>	<i>%</i>
1940.....	313,456,000	163,556,000	52.9	146,064,000	47.1
1941.....	462,852,000	265,544,000	60.2	175,168,000	39.8
1942.....	585,440,000	339,960,000	58.6	241,028,000	41.4
1943.....	701,999,000	386,000,000	55.	315,999,000	45.

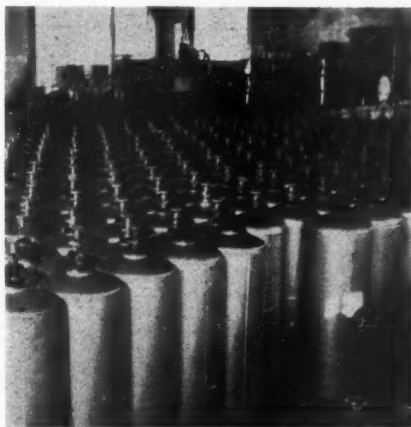
cate that our 1942 estimate of 1,840,000 domestic accounts should be revised either up or down. To this figure, then, we add the 39,500 new installations for the past year, bringing the grand total up to 1,879,500 homes now enjoying the convenience and the comfort of LP-Gas.

Industrial sales classifications, which include all manufacturing, heat treating, internal combustion engine, gas manufacture, enrichment and standby use, show the greatest gain in the history of the industry. For here sales, totaling 395,420,000 gallons show an increase of 38.2% over the sales of 285,881,000 gallons for similar uses as reported by the Bureau of Mines for 1942.

While butane production still remains in greater volume than that of propane it is probable that as a per cent of the total of all LP-Gases marketed it is showing a decline. This is due to the fact that 1943 saw an increased use of butane mixtures at the refineries because of the requirements for alkylation of the isobutane and the isomerization of some of the normal butane for 100 octane gasoline. Our estimate is that approximately

55% of the marketed production of LP-Gas for 1943 was butane, and 45% propane. (See Table 2.)

Some conversion from butane to propane was effected during the year, notably in California where an artificially whipped-up scare on the part of two producers panicked the entire state into the fear that their LP-Gas supply was to be cut off arbitrarily in the early fall. One large army camp changed over to propane, and a few isolated users with suitable equipment followed suit. The total saving, in butane consumption thus effected may now



**A carload of propane cylinders to serve Pennsylvania domestic users.**

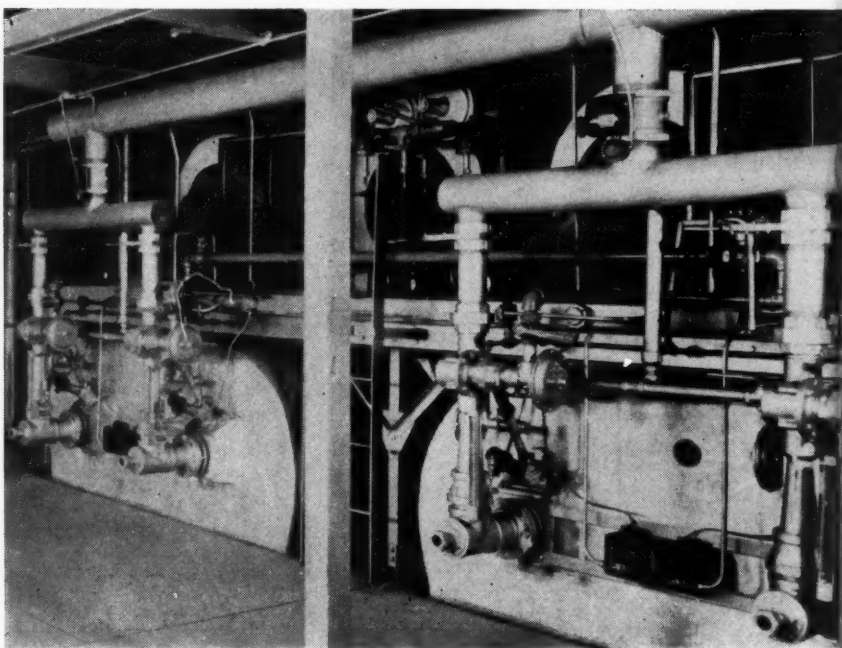
total 1,000,000 gallons per month. This regrettable incident seems to have subsided now, while the PAW-appointed industry committee makes a further study of the situation to ascertain whether further conversion should be undertaken.

LP-Gas industrial standby was drawn on heavily throughout the entire year, but particularly during the winter months when peak load drains hit the gas utilities hard. Two areas of the country saw the heaviest demand in this category, the Appalachian area in the east, and central and southern California on the West Coast.

While supply in the main was adequate, even abundant in some

instances, transportation was the bottleneck that caused the few momentary disruptions of services that were experienced. Early in the year the Defense Plant Corp. began withdrawing from service the 253 tank cars that had been leased to LP-Gas carriers pending their use in the synthetic rubber program. As winter approached another diversion of cars from butane and propane service was ordered, when approximately 250 tank cars were temporarily commandeered for other war uses.

**Thus at the present writing the transportation situation is at the most critical state of the entire emergency, and only the most dili-**



Burner unit and control panels of LP-Gas furnace in Midwest enameling plant.



gent effort in maintaining a rapid turn-around of equipment will avert serious breakdowns within the next 30 days. It is possible to predict with some assurance, however, that after the month of January the crisis in transportation will have been passed, perhaps for the duration of the war.

This will be felt as the ODT conversion program progresses, under which 1000 tank cars of 10,000-gallon capacity each are being remodelled and refitted to handle butanes, butylenes and butadiene mixtures.

The outlook for 1944 can all be summed up in simple terms, however—it will be war and more of it for the first few months at least. Whether or not there will be any easing in restrictions on new in-



A 90-hp. butane-fueled grader on a large dam project in Oklahoma. Butane has been found superior to gasoline in heavy duty equipment.

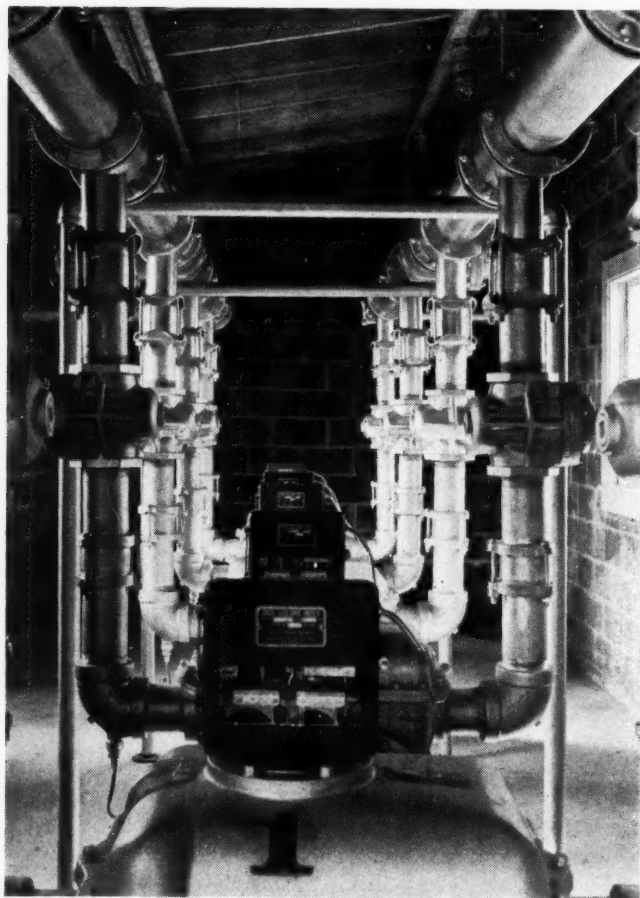
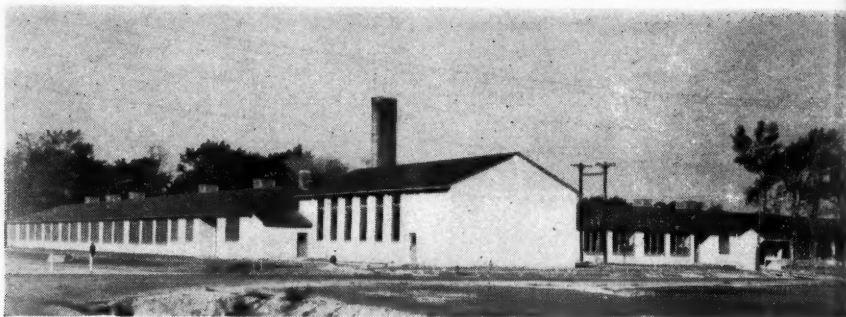


Chicken brooding with LP-Gas offers a big future load for dealers. Farmers everywhere are adopting this fuel for agricultural operations.

stallations is anybody's guess. Certainly it is our advice to the trade at the present writing that nothing will be gained by flooding PAW with WPB 809 (PD-397) requests, nor requesting wholesale reopening of cases that have already been denied.

#### Industry's Control in Good Hands

Government agencies in Washington are outspoken in their praise of the manner in which LP-Gas operators in every category from refiners to dealers have measured up to the rigorous emergency requirements that the war has imposed. And we repeat the assertion that we have made on many occasions, that we believe the entire industry can rely implicitly on the judgment and the cooperation that has been evidenced and can be expected from the offices of the PAW.



## LP-GAS SERVES A NEW CITY

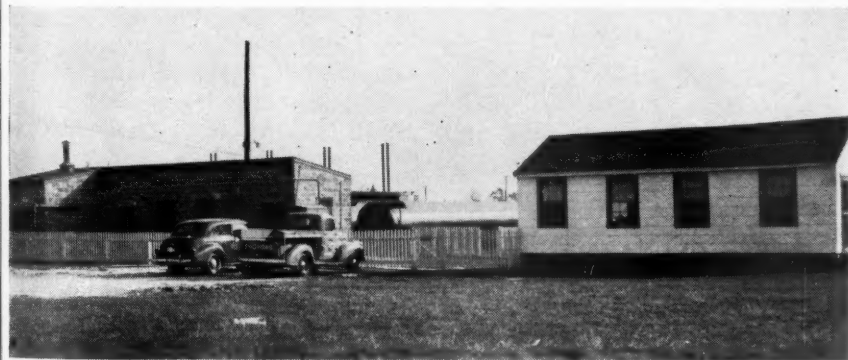
**ABOVE:** Elizabeth City County elementary school which is in the center of Cope land Park and which illustrates the high character of building construction typical of the project.

**LEFT:** Master meter set-up with automatic correction devices for pressure and temperature which measure undiluted propane before entering the nearly 50 miles of mains at Cope land Park.

# Propane Gas Gives Ship Workers Home Comforts in Big Project

**J**UST east of Newport News, Va., lies a brand new city of 23,000 people, built as a government project by the Federal Housing Authority to provide homes for workers in nearby shipbuilding plants. Created out of a barren area one year ago, and named Copeland and Newsome Parks, 5200 dwelling units have been erected on 1023 acres of the original 1173-acre tract. More than a dozen different grouping of subdivisions in the tract, winding streets and the establishment of four shopping areas, schools, fire stations and bicycle paths prevent even a suggestion of the monotony of many similar undertakings and give residents the feeling of living in homes rather than barracks.

Warwick and Elizabeth City Counties in which Copeland Park is situated, like many other industrial sections of this country, has had a tremendous infiltration of war workers during the past three years. The population of these counties has more than doubled during this time. An example of this would be the exceptional increase of employment at the Newport News Shipbuilding and Dry Dock Co. This large shipyard now has employed more than 30,000 men and women, whereas under normal conditions they employ about 5000 to 6000 people. This is also true of various other industrial plants located in that area. In addition to this, thousands of civilian workers are employed at



Plant of the Eastern Shore Gas Co. of Virginia at Copeland Park which supplies undiluted propane gas to this young war city of more than 20,000 residents.

Langley Field, Fort Monroe, Hampton Roads Port of Embarkation, Fort Eustis and other various nearby military and naval training stations.

Naturally, with this tremendous increase in population the problem of housing these people became extremely acute, and it was necessary for the Government to build a number of housing projects to relieve this very serious condition. One of the many of these projects was Copeland Park.

But for propane gas, this young town and the vital relation it bears to the war effort probably could not have come into existence, as other fuels were either not available or could not contribute to the needs and comforts of the residents in proportionate degree.

This is the largest individual government housing project operated by the Federal Housing Authority, according to official statements, and that propane was se-



Gen. Curtis T. Green, manager of the Copeland Park Housing Project near Newport News, Va.

lected is a direct tribute to the LP-Gas industry. Every house unit is equipped with an LP-Gas range and automatic water heater and in the year since the project was completed and 90% occupied, they have had uninterrupted service.

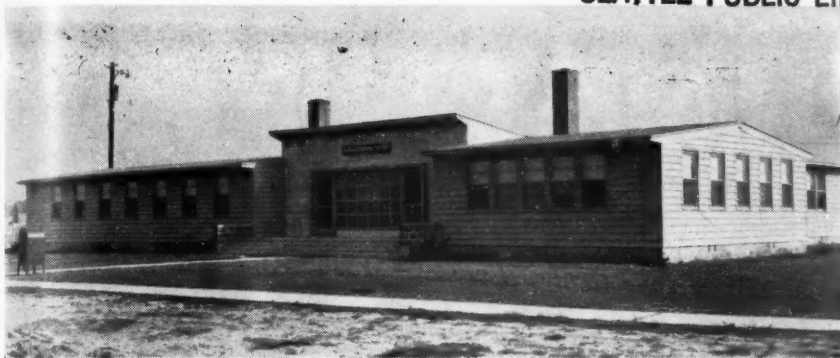
#### Eastern Shore Gas Serves Project

The Eastern Shore Gas Corp., of which W. H. Wulf is president, serves this project through its subsidiary, the Eastern Shore Gas Co. of Virginia, Inc., and provides for supplying undiluted propane gas and the operation and maintenance of the gas plants, its distribution system and appliances. This branch is under the management of M. J. Peacock.

The distribution system consists of 48.7 miles of mains and piping with central plant having four 18,000 gallon storage tanks, five American master meters with automatic correction devices for pressure and temperature, four Pittsburgh master regulators, two 1000-gallon capacity vaporizers and one gas fired boiler. The gas plant has a private railroad siding and tank cars are unloaded with a Brunner compressor. A Smith pump is also connected for standby service. A 12-day supply makes up the storage capacity.

Propane gas is supplied from the Baltimore, Md., and Bayonne, N. J. refineries of the Standard Oil Co. of N. J.

The distribution system is operated on high pressure in the mains, reduced to 11 in. water column for the appliances. Every dwelling has its individual meter made by



The Administration Center for Copeland Park, which contains 5200 dwelling units on its 1023-acre tract.

American Meter Co., and used for checking gas consumption of tenants. The monthly rentals of dwelling units include the cost of all utilities. All appliances are connected with  $\frac{1}{4}$ -in. steel tubing from the outlet side of the meters to the appliances and dresser fittings are used instead of the flared type of fittings.

Copeland Park has been in operation for more than one year. It is under the management of Curtis T. Green, housing manager. It is a modern town in the fullest sense of the word, having all the conveniences and services of a much older city. These include the sewerage system which is operated by six pumping stations, 66 miles of finished roads, 12 miles of side walks, electrical system consisting of 145.8 mile of high tension and secondary lines, water drains and culverts, street lights, fire alarm system, etc.; also, bus transportation throughout the entire project and 38 bus stations.

Where, two years ago, was a

tract of farms, swamps and barren land, now stands Copeland Park, a modern city of more than 20,000 people!

### ODT Wants Gallonage Reports From Tank Truck Operators

Office of Defense Transportation has emphasized the necessity for the punctual filing of complete and accurate monthly operating reports required from certain classes of motor carriers. The reports are required of truck operators to whom monthly operating forms are mailed by the ODT.

All information with respect to loads must be in tons, except in the case of tank vehicles for which load information should be shown in gallons. In the event an operator maintains his record of loads transported in units other than tons or gallons, such units should be converted into tons or gallons as accurately as possible. For example, if cubic feet are used, then multiply the number of cubic feet by the average weight per cubic foot of the commodity transported and convert the result into the required tons.

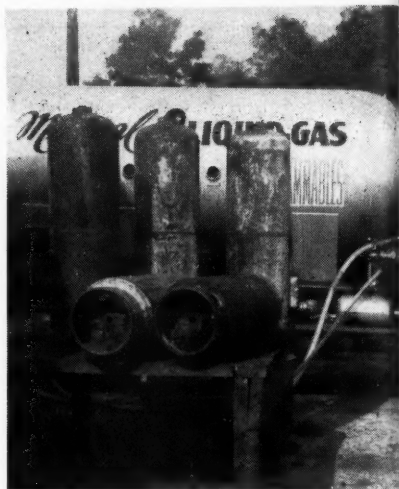


## Cylinders Meet Fiery Test

**I**N early November a disastrous brush fire swept through Topanga canyon and surrounding territory near Santa Monica, Calif. Thousands of acres were burned over and hundreds of mountain cabins and homes were destroyed. Losses ran into millions.

Numerous home owners used LP-Gas for cooking, water heating, refrigeration and space heating. After the fire dozens of the gas cylinders, blackened and paint gone, were found standing where installed. In not a known instance was there an explosion of gas or a ruptured tank, although the fire was so hot that it melted fittings and piping.

On the other hand, there were many explosions of gasoline and kerosene stored in various sizes of containers. Porcelain enamel sinks and bathtubs literally dripped away because of the severe heat.



Here are two views of some of LP-Gas cylinders that went through a big California brush fire. They are of 65 lb. capacity, 38 in. high and with 12 in. diameters. Undamaged, they will be returned to service after being repainted and refilled in the plant of the Mutual Liquid Gas Co., Inglewood, Calif., where they now stand. Mutual had many tanks in the fire area, as did other dealers in the locality.





# Synthetic Rubber Demands Make Inroad on Butane Supply

By W. D. PARRISH

Technical Service Manager, Hycar Chemical Company, Akron, Ohio

**R**OUGH, hard usage of war is demonstrating the superior qualities of synthetics over ordinary rubber.

Today's warships, submarines, bombers and fighter planes, jeeps, trucks, tanks, all vitally depend upon the higher resistance of the synthetic to impact, abrasion, oil, heat and other elements of wear and deterioration which are destructive to natural rubber.

These vehicles of war could not operate if they relied on natural rubber which would fail under many of the extreme service conditions.

On the war production line where performance is as important as on the battle line, growing recognition is being given to the qualities of rubber made from petroleum, gas, alcohol, industrial wastes, coal, coke and other materials that are being used in the nation's vast rubber program.

These views are based chiefly on the performance of hycar, a group of synthetic rubbers that have butadiene (pronounced bue-ta-dye'-een) as their base. Observations with regard to the performance of hycar gain in significance when it is remembered that the largest volume of synthetics to be produced in the federal government's

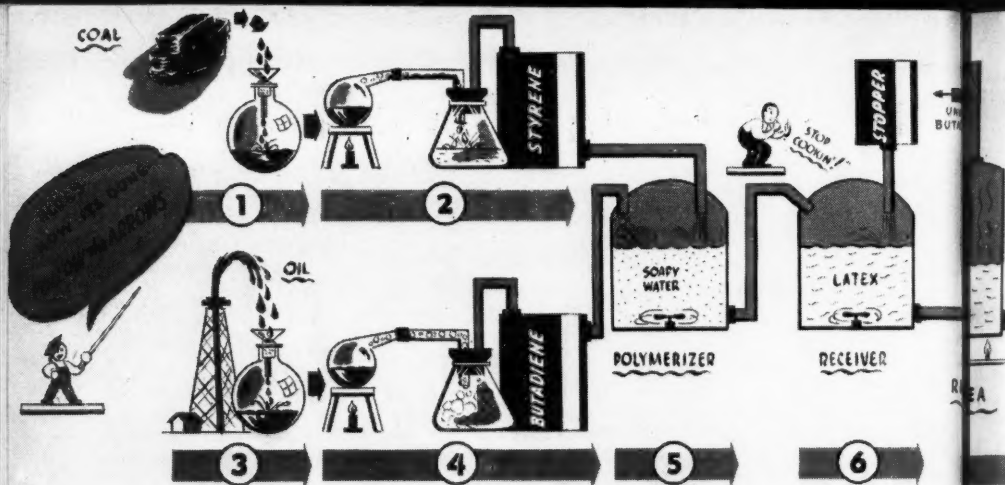
\* Until the war with Japan shut off from America its largest sources of natural rubber, the liquefied petroleum gas industry felt no threat to its supply of fuel, for in spite of constantly skyrocketing sales volumes annually, there was an over-production of LP-Gases.

With the need for butane for butadiene for synthetic rubber and for high octane gasoline, tremendous demands appeared for butane, diverting large volumes of it that formerly were used in domestic, internal combustion engine and industrial channels.

While there will probably continue to be a sufficient supply of butane for essential needs as well as for war products, this fuel, which was considered a liability by refineries so few years ago, will be increasingly required for manufacturing and for blending stocks. Hence, men of the LP-Gas industry will be interested to learn how butane is being utilized and articles will appear in BUTANE-PROPANE News from time to time upon its various applications. The accompanying discussion tells of its use in making rubber.—Editor.

rubber program will be made from butadiene.

Among its many superiorities, synthetic rubber has one pronounced advantage over the natural material—it can be varied in the basic crude state through modifications in its manufacture. From the public's more immediate viewpoint, the most notable record is probably that of passenger automobile tires composed of synthetic rubber. It is remarkable that in a relatively short time synthetic rubber tires have been produced with wearing qualities comparable



Copolymer synthetic rubber, a Buna-S type, is made principally from butadiene and styrene. It is a product of the Copolymer Corp., of Baton Rouge, La., which is operated jointly by The Dayton Rubber Manufacturing Co. and six other companies. The accompanying schematic diagram is reproduced through the courtesy of the Dayton Rubber Manufacturing Co., of Dayton, Ohio.

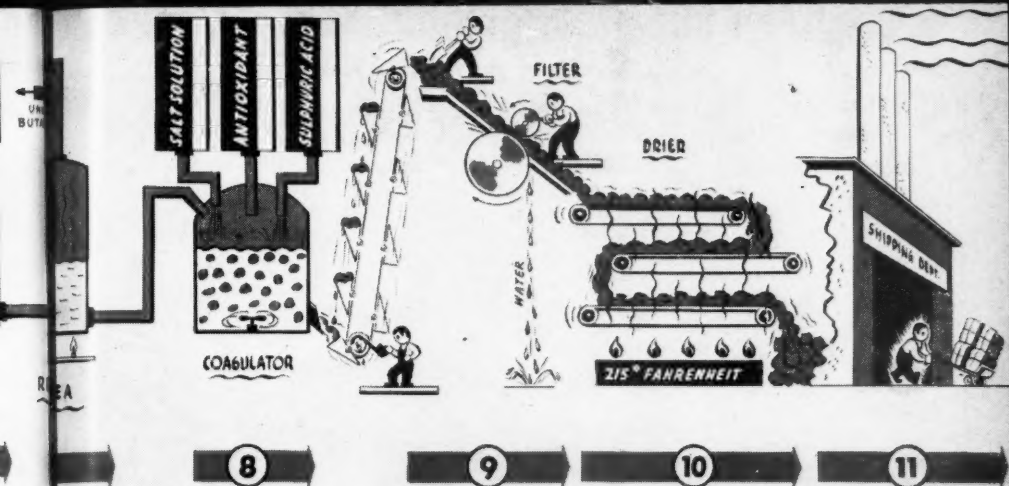
- 1 & 2. Tank Farm Area. Styrene, a liquid, is a derivative of coal tar and petroleum. It is one of the hydrocarbon family, but of a different molecular structure than butadiene.
- 3 & 4. Tank Farm Area. Butadiene, a gas composed of hydrogen and carbon, is piped into Copolymer's storage tanks from the adjacent oil refinery.
5. Reactor Area. Here, three parts of butadiene to one part of styrene are mixed in a solution of soapy water. In combining, they form a basic latex similar to that of natural rubber.
6. Reactor Area. In massive reactor tanks, the latex is agitated for a definite length of time.

to natural rubber, which required more than 40 years' experience in compounding to bring it to its present high standard.

If the improvement in synthetic rubber continues at the rate of the past two years as result of further development of compounding materials specifically for use with the synthetics, it will not be unreasonable to expect further developments which will bring about the production of synthetic tires to last the normal life of the car. This is indicated in a recent test run in which synthetic rubber tires, under 35% overload, traveled 37,000 miles at 60 miles an hour. This test was made to determine the value of a

new carbon black (reinforcing agent) manufactured by the Phillips Petroleum Co. specifically for synthetic rubber. This is just one example of a compounding ingredient developed primarily for the synthetics and the results are suggestive of what further development will bring about.

Resistance to wear is only one quality in which these synthetics excel. They have greater resistance to oil, gasoline and similar fluids that cause rubber to soften and lose its original properties. They have greater resistance to the effects of heat and oxidation, the influences that cause rubber to crack and fall apart with age.



Then a chemical is added to halt the uniting process, much the same as in making a photographic print where a chemical is added to stop the action of the developing solution.

7. Recovery Area. Some of the butadiene and styrene is not absorbed in producing the latex. Through certain processes, the unused amounts are recovered and recycled back into the system.

8. Finishing Building. After a preservative is added to the latex, it is pumped into a solution of brine where the latex coagulates. The process is like that of sour milk that becomes curdled. By the introduction of another chemical, all remaining traces of soap are removed.

9. Finishing Building. The small rubber particles are filtered to extract the excess liquid.

10. Finishing Building. Drying is accomplished by carrying the rubber back and forth on a slow moving belt through hot circulating air.

11. Finishing Building. The rubber is conveyed to a weighing and baling machine, where it is compressed into bales, ready for shipment.

In many parts of airplane construction, the aircraft designer takes advantage of the unusual qualities of synthetics. One of its dramatic contributions to military aviation which has captured the public's fancy is the self-sealing gasoline tank. It has saved the lives of countless American aviators by its unique ability to instantly "heal" its own bullet wounds. Before the advent of the synthetics, these tanks would have been out of the question because gasoline destroys natural rubber and, therefore, prevents it from being used as the flexible liner to form a barrier between the gasoline and the sealing materials.

In the airplane as in the automobile, gaskets, seals, packings, resilient fittings and hose made of synthetic rubber are used where such parts are exposed to oil, sunlight or heat. In this service, ordinary rubber would be out of the question, but hycar is giving notable performance. Only by the use of synthetic rubber has modern aviation been made possible.

In the operation of tanks, hycar is standing up under extreme conditions. In a California test, tank tread blocks made of a special hycar outlasted natural rubber approximately one and one half times. The cooling liquid in tank engines reaches a temperature of 250-300

degrees Fahrenheit, or more than 100 degrees hotter than the water in an ordinary automobile radiator. Connections of synthetic must be used at that temperature because rubber would be immediately destroyed by the heat and the cooling liquid.

Because this butadiene synthetic is superior to natural rubber in its ability to absorb vibrations, it is being used in engine mountings for tanks, trucks and jeeps where continued operation under adverse conditions is paramount. Under the gruelling conditions of the North African campaign, the new

synthetics, with their remarkable resistance to oil, abrasion and heat, are helping in a unique way to bring victory to the United Nations.

In this campaign, the armies naturally consumed enormous quantities of gasoline. This had to be stored, and storage meant that big metal tanks had to be shipped from the United States. It was out of the question to ship these tanks in any form except in small segments that could be nested in the holds of vessels. The question as to how to fasten these segments together to prevent leakage was



This worker is standing on a "blow-down" tank, about ready to tap a polymerizer tank. The latex blended in the latter tank is stabilized in the "blow-downs."

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solved when gaskets of hycar were used to seal the joints. Natural rubber could not be used here because of its poor resistance to the effects of gasoline.

In many other ways, butadiene synthetics are helping the United Nations on the fighting fronts. Barrage balloons are made of synthetics chiefly because of their higher resistance to sunlight and their greater ability to contain gases. The resistance to abrasion of these new materials gives an enduring quality to floor coverings in warships and other war vehicles that receive hard usage and particularly where oil, gasoline and greases are present.

Since Pearl Harbor and our resulting loss of rubber-producing areas, the attention of the public has been focused upon synthetic rubber. However, a preference for

this material in many important uses, such as vibration dampeners, seals, gaskets, grommets, coated fabrics and other articles had been previously demonstrated by years of use in industry.

Upon such previous successful performance was based the application of synthetics in the design of much of our modern war equipment. Spectacular as they are, these war uses clearly foretell equally striking peace-time applications.

If synthetic rubber is given free rein to develop, it will find an unlimited field of usefulness. Not only will this new material serve as a direct replacement for natural rubber over which it has already definitely proved its superiority, but it will also find many new applications for which natural rubber could not even be considered.

▲

These control instruments in a plant of the B. F. Goodrich Co. maintain the proper temperatures and pressures in the polymerizer tanks where raw material monomers are changed into polymers. (Photos with this article through OWI.)

▼



# THE BOTTLED GAS MANUAL

## Chapter 23

## Space Heating

### Part 1

**I**N several of our evening sessions together we have made comparisons of propane with other fuels for space heating, but we haven't yet learned how to figure heating costs, required inputs, or equivalent square feet of steam radiation.

Fuels cost money, and we can be wasteful or saving of them. Our wastes come in faulty insulation, excessive ventilation, poor combustion, wasteful use of fuel, or unnecessarily high temperatures. Good insulation is a money saver in the long run, and before one attempts a heating job with propane he should insist upon proper insulation. You are justified in doing this and including it in the cost of installing a propane heating plant because of the many advantages and conveniences which you offer that are not obtainable with other fuels. Because of the fact that warm air rises, first attention should be given to insulation of the roof or ceiling. The next step is to provide double windows and doors. The third step is to give attention to insulation of the side walls. Fourth comes the insulating of floors and the basement.

The actual heating of air requires very little energy. Back in Chapter 3 we learned that at ordinary temperatures and constant pressure the specific heat of air is 0.23751.

One cubic foot of air weighs approximately 0.090728 lbs.; therefore, to raise the temperature of 1 cu. ft. of air  $1^{\circ}$  Fahrenheit it requires  $0.080728 \times 0.23751 = 0.01917370728$  B.t.u. From this, one can easily gather that if nearly perfect insulation were possible and we could do away with ventilation, precious little heat would be required for the average home. Unfortunately, we cannot live in buildings which are not properly ventilated. Pure, country air contains about 0.4 parts of carbon dioxide to 1000 parts of nitrogen, oxygen, and the other gases which go to make up air. A room is considered to be properly ventilated when the carbon dioxide content does not exceed 0.8 parts in 1000. We exhale approximately 0.6 cu. ft. of carbon dioxide per hour. The difference between the carbon dioxide content of 1000 cubic feet of pure country air, and what is considered to be air of satisfactory purity, is only  $0.8 - 0.4 = 0.4$  cu. ft. of carbon

- The Bottled Gas Manual series by C. C. Turner, started in the July, 1941, issue of BUTANE-PROPANE News and will continue to be published monthly in chapter form until completed. This series constitutes a valuable text book and field manual that should be invaluable to everyone in the liquefied petroleum gas industry.—Editor.



dioxide; therefore, because of the mixing effect of the diffusion of gases, one vitiates  $0.6 \div 0.4 = 1.5$  thousand cubic feet of air per hour, and this amount of pure air per person is required to replace it. Even at this, the actual cost of heating would be very moderate if we could corral the exact air which is vitiated and replace it, but here, again, because of the diffusion of gases we cannot do this.

*Determining the Square Feet of Radiation Required.* There are almost as many formulas for doing this as there are heating experts in the game. Practically all of these formulae give the answer in the number of square feet of steam radiation required. If you have a pet formula which has given you satisfactory results, stick to it. My personal preference is for a modification of the so-called Mills formula which is as follows:

$$R = \left( \frac{C}{200} + \frac{G}{2} + \frac{W}{20} + \frac{F}{20} + \frac{S}{20} \right) T$$

In which:—

R = Number of square feet of steam radiation required.

C = The cubical contents of the room in cubic feet.

G = Number of square feet of glass and outside door area.

W = Number of square feet of exposed wall area, *minus* number of square feet of glass and outside door area.

F = Number of square feet of floor area *if* the space beneath the room is not heated.

S = Number of square feet of ceiling area *if* the space above it is not heated.

T = The "Design Factor", which is based on an inside of 70° F. and the lowest outside temperature which will be encountered for any continued spell. These values are shown in Table 1 and are as follows:

Outside Temperature	Value of "T"
30° F	4/7
2°	5/7
1°	6/7
0	7/7 or 1
-1°	8/7
-2°	9/7

If double doors and windows are installed  $\frac{G}{2}$  may be changed to  $\frac{G}{4}$ .

If the space below the floor is heated  $\frac{F}{20}$  may be eliminated, and

if the space above the ceiling is heated then  $\frac{S}{20}$  may also be dropped from the formula.

*How the Formula Works.* Let us suppose that we have a corner room 8 ft. high and measuring 10 ft. by 15 ft. It has two exposed walls, 30 sq. ft. of glass and outside door, and no heat above or below the room. The location is Bismarck, North Dakota.

The exposed walls will be 10 ft. x 8 ft. and 15 ft. x 8 ft., or a total of 200 sq. ft., but as the glass and outside door area is to be deducted there are left  $200 - 30 = 170$  sq. ft. of exposed wall surface. By consulting Table No. 1 we find that the design factor for Bismarck, North Dakota, is 9/7.

Substituting values in the formula we have:

**TABLE 1. GAS REQUIREMENT, DESIGN FACTOR, OVER-ALL FACTOR AND DEGREE DAYS FOR 102 CITIES AND TOWNS IN THE UNITED STATES.**

<i>State</i>	<i>City or Town</i>	<i>Gas Require- ment Factor, Symbol "M"</i>	<i>Degree Days, Symbol "R"</i>	<i>Over-All Factor, Symbol "A"</i>	<i>Design Factor, Symbol "T"</i>
Alabama	Birmingham	130	2527	328,510	6/7
	Mobile	155	1439	233,045	5/7
	Montgomery	155	1898	294,190	5/7
Arizona	Flagstaff	88	19,913	960,344	8/7
	Phoenix	155	1446	224,130	5/7
	Prescott	110	5060	556,600	1
Arkansas	Hot Springs	130	2665	346,450	6/7
	Little Rock	130	2861	371,930	6/7
California	Eureka	110	5021	552,310	1
	Los Angeles	190	1517	288,230	4/7
	San Francisco	155	3450	534,750	5/7
Colorado	Boulder	110	5665	622,150	1
	Denver	88	5880	517,440	8/7
	Pueblo	110	5671	623,810	1
Connecticut	Hartford	110	6124	673,640	1
	Waterbury	110	5661	622,710	1
Delaware	Wilmington	110	4813	529,430	1
Florida	Jacksonville	190	1080	205,200	4/7
Georgia	Atlanta	130	2880	374,400	6/7
	Gainesville	130	3259	423,670	9/7
	Savannah	155	1517	235,135	5/7
Idaho	Boise	110	5657	622,270	1
	Pocatello	110	6459	710,490	1
	Twin Falls	110	6600	726,000	1
Illinois	Aurora	110	6661	732,710	1
	Cairo	110	4053	445,830	1
	Chicago	110	6007	660,770	1
	Springfield	110	5495	604,450	1
Indiana	Evansville	110	3355	369,050	1
	Fort Wayne	110	5927	651,970	1
	Indianapolis	110	5331	586,410	1
	Terre Haute	110	4920	541,200	1
Iowa	Des Moines	88	6464	568,832	8/7
	Marshalltown	88	7103	625,064	8/7
Kansas	Topeka	110	5282	581,020	1
	Wichita	110	4675	514,250	1
Kentucky	Frankfort	110	4241	466,510	1
	Louisville	110	4366	480,260	1

**TABLE 1. GAS REQUIREMENT, DESIGN FACTOR, OVER-ALL FACTOR AND DEGREE DAYS FOR 102 CITIES AND TOWNS IN THE UNITED STATES.**

*(Continued from Previous Page)*

<i>State</i>	<i>City or Town</i>	<i>Gas Require- ment Factor. Symbol "M"</i>	<i>Degree Days. Symbol "R"</i>	<i>Over-All Factor. Symbol "A"</i>	<i>Design Factor. Symbol "T"</i>
Louisiana	New Orleans	155	1044	161,820	5/7
	Shreveport	130	2097	272,610	6/7
Maine	Eastport	88	8676	763,488	8/7
	Portland	88	7267	639,496	8/7
Maryland	Baltimore	130	4591	596,830	6/7
Massachusetts	Boston	110	6055	666,050	1
	Springfield	110	6464	711,040	1
Michigan	Detroit	88	6202	545,776	8/7
	Grand Rapids	88	6613	581,944	8/7
	Marquette	88	8866	780,208	8/7
Minnesota	Duluth	78	9650	752,700	9/7
	Minneapolis	78	7953	620,334	9/7
Mississippi	Jackson	155	1920	297,600	5/7
	Meridian	155	2527	391,685	5/7
Missouri	Kansas City	110	5302	583,220	1
	St. Joseph	110	5289	581,790	1
	St. Louis	110	4583	504,130	1
Montana	Anaconda	78	9158	714,324	9/7
	Helena	78	7764	605,592	9/7
Nebraska	Lincoln	88	6231	548,328	8/7
	Omaha	88	6127	539,176	8/7
Nevada	Reno	110	5894	648,340	1
New Hampshire	Concord	88	7335	645,480	8/7
New Jersey	Atlantic City	110	5250	577,500	1
	Trenton	110	5033	553,630	1
New Mexico	Albuquerque	110	4401	484,110	1
	Santa Fe	110	6064	667,040	1
New York	Albany	88	6542	575,696	8/7
	Buffalo	88	6750	594,000	8/7
	New York	110	5303	583,330	1
	Syracuse	88	7269	639,672	8/7
North Carolina	Charlotte	130	3153	409,890	6/7
	Wilmington	130	2493	324,090	6/7

**TABLE 1. GAS REQUIREMENT, DESIGN FACTOR, OVER-ALL FACTOR AND DEGREE DAYS FOR 102 CITIES AND TOWNS IN THE UNITED STATES.**

*(Continued from Previous Page)*

<i>State</i>	<i>City or Town</i>	<i>Gas Require- ment Factor, Symbol "M"</i>	<i>Degree Days, Symbol "R"</i>	<i>Over-All Factor, Symbol "A"</i>	<i>Design Factor, Symbol "T"</i>
North Dakota	Bismarck	78	8498	662,844	9/7
Ohio	Cincinnati	110	5302	583,220	1
	Cleveland	110	6096	670,560	1
	Columbus	110	5426	596,860	1
Oklahoma	Tulsa	130	3497	454,610	6/7
Oregon	Eugene	110	5588	614,680	1
	Portland	130	4449	578,370	6/7
Pennsylvania	Altoona	110	6115	672,650	1
	Philadelphia	110	4950	544,500	1
	Pittsburgh	110	5327	585,970	1
Rhode Island	Providence	110	6111	672,210	1
South Carolina	Charleston	155	1770	264,350	5/7
	Columbia	155	2600	403,000	5/7
South Dakota	Aberdeen	78	8709	679,302	9/7
	Sioux Falls	88	7683	676,104	8/7
Tennessee	Chattanooga	130	3099	402,870	6/7
	Nashville	130	3550	461,500	6/7
Texas	Amarillo	110	4655	512,050	1
	Austin	190	1578	299,820	4/7
	Dallas	130	2455	319,150	6/7
	Galveston	190	1050	199,500	4/7
Utah	Salt Lake City	110	5358	589,380	1
Vermont	Burlington	88	8123	714,824	8/7
Virginia	Richmond	130	3789	492,570	6/7
Washington	Seattle	110	5156	567,160	1
	Spokane	110	6085	669,350	1
West Virginia	Charleston	130	3789	492,570	6/7
	Wheeling	110	5214	573,540	1
Wisconsin	Green Bay	78	8201	639,678	9/7
	Milwaukee	88	7366	648,208	8/7
Wyoming	Cheyenne	88	7360	647,680	8/7

Author's Note: I am indebted to the Estate Stove Co. for data appearing in the first, second and fourth columns of figures of this table.

$$R = \left\{ \frac{(10 \times 15 \times 8)}{200} + \frac{30}{2} + \frac{170}{20} \right.$$

$$\left. + \frac{(10 \times 15)}{20} + \frac{(10 \times 15)}{20} \right\} \frac{9}{7}$$

$$R = \left( 6 + 15 + 8.5 + 7.5 + 7.5 \right) \frac{6}{7}$$

$$R = (44.5) \frac{9}{7}$$

R = 57.21 sq. ft. of steam radiation required.

Let us change our problem by putting on storm doors and windows. Then:

$$R = \left\{ \frac{(10 \times 15 \times 8)}{200} + \frac{30}{4} + \frac{170}{20} \right.$$

$$\left. + \frac{(10 \times 15)}{20} + \frac{(10 \times 15)}{20} \right\} \frac{9}{7}$$

$$R = \left( 6 + 7.5 + 8.5 + 7.5 + 7.5 \right) \frac{9}{7}$$

$$R = (37.0) \frac{9}{7}$$

$$R = \frac{333}{7}$$

R = 47.57 sq. ft. of steam radiation required.

Note that by simply putting on double doors and windows we have cut the number of square feet of steam radiation necessary from 57.21 to 47.57. This is a saving of 9.64 sq. ft. or 16.85%! Isn't it obvious that this type of insulation pays?

*Selecting the Proper Size of Heater.* The number of B.t.u. which 1 sq. ft. of steam radiation will give out is proportional to the dif-

ference in temperature between the circulating medium (steam or hot water) and the air in the room. In a room with a temperature of 70°F. a steam radiator heated to 215°F. at 1 lb. steam pressure will give out approximately 240 B.t.u. per hour for each square foot of radiating surface, and this figure is taken as the approximate value of 1 sq. ft. of steam radiation. Let us go back to our example again. If we require 57.21 sq. ft. of steam radiation for the room described, we need a heating unit which can *put out*  $240 \times 57.21 = 13,730.4$  B.t.u. per hour. If, however, by the installation of storm windows and doors we only require 47.57 sq. ft. of steam radiation to do the same job we will then only need a heating unit which can *put out*  $240 \times 47.57 = 11,416.8$  B.t.u. per hour.

Note that I have emphasized the words, "*put out*," which, in heating parlance, are reversed as "*out-put*" to signify the amount of heat which a heating unit can *deliver*. Right here we come up against the matter of efficiencies. Vented heaters of the circulating type have an efficiency of from 75% to 80%.\* Unvented heaters of this same type have an efficiency of from 80% to 90%. Let us be conservative in both instances and use as a basis of figuring the efficiencies of 75% and 80% respectively. If 13,730.4 B.t.u. is 75% of what the input must be, then 1% would be 1/75th of this amount, and 100% would

\* This figure arrived at by an analysis of inputs and outputs as given in the Estate Stove Co.'s catalog on gas circulating heaters.

be 100 times  $1/75$ th of 13,730.4 B.t.u., or 18,307. If however, 11,416.8 B.t.u. is 75% of what the input per hour must be, then 1% would be  $1/75$ th of this amount, and 100% would be 100 times  $1/75$ th of 11,416.8 B.t.u., or 15,222 B.t.u. I bring these facts to you in order to emphasize the fact that not only does insulation return dividends in fuel costs, alone, but it also makes possible the use of a smaller heating plant with the consequent saving in initial investment.

*The Effect of Insulation on Heating Plant Size.* The formula which we have used is for the average frame building, constructed with reasonable care, but without insulation. We have noted already the great saving which is possible with such small attention to insulation as providing double doors and win-

dows. Table 2\* sheds more light upon the importance and economic value of possible savings in fuel and heating plant investment made possible by properly insulating a building.

You will note that the percentages by which the size of the heating plant may be cut down are conservative, for while we have already noted from the formula that the saving by using storm doors and windows is a little bit better than 16% (the table gives it as 15.96%) a cut in the amount of steam radiation of only 10% is recommended. I suggest that inasmuch as there are several deduc-

\* The figures in this table with the exception of the last column very closely approximate those given by "The Guide of the American Society of Heating and Ventilating Engineers."

**TABLE 2. PERCENTAGES OF HEAT LOSSES THROUGH VARIOUS PORTIONS OF A BUILDING WITH SAVINGS TO BE MADE BY ADOPTING CERTAIN TYPES OF INSULATION.**

Place Where Heat Is Lost	Heat Loss Percentage In An Un-insulated Building	Method of Preventing Heat Loss	Percent of This Particular Loss Saved	Percent of Total Heat Loss	Percent That Number sq. ft. Steam Radiation May Be Cut Down
Walls and roof	44.4	4 in. of mineral wool	75	33.3	25
Window glass and outside doors	26.6	Double doors and windows	60	15.96	10
Window glass and outside doors	20.5	Weatherstripping in addition to double windows and doors	50	10.25	5
Floors	8.5	4 in. of mineral wool	75	6.375	3
Totals	100%			68.885%	43%



THIS  
IS OUR  
JOB



**FISHER**

**GOVERNOR COMPANY**

956 Fisher Building

**Marshalltown Iowa**

Our job today is the exclusive manufacture of automatic control equipment for war use. To be more specific, the manufacture of automatic control equipment for the Army . . . the Navy . . . Lend Lease . . . the Synthetic Rubber Program . . . the Production of Aviation Gasoline . . . the Merchant Marine . . . Ordnance Plants, and all other war-time industries.

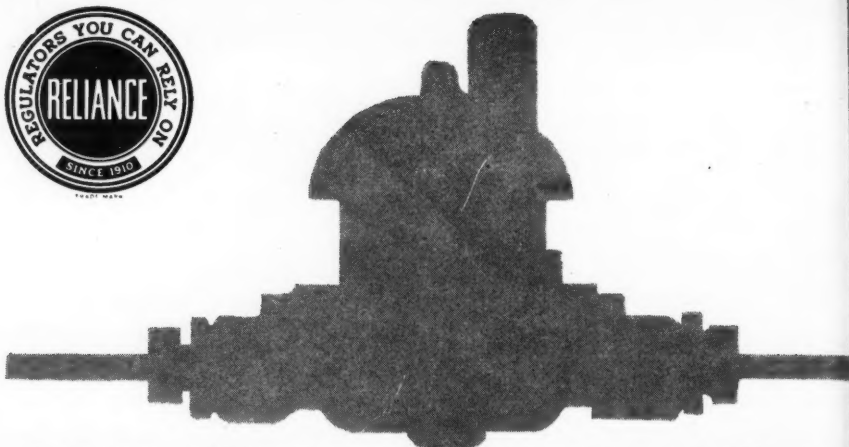
All our peace-time activity, *except one thing*, has, of necessity, faded into the background.

That exception is, *our LPG plans for the future.*

We know, as you do, that the future of the LPG Industry is bright. Our planning for these good years ahead incorporates far more than simply the manufacture of control equipment, for we recognize the vital importance of continuous engineering research in the design and development of new and improved LPG products.

Our plans also call for a complete line of control equipment, including improved Regulators and Assemblies, Cylinder Valves, Underground Equipment, Self-service Systems, Bulk Station Equipment, etc.

Just as soon as manufacturing restrictions on LPG equipment are lifted or modified, we will be in a position to start production at once. Without any re-conversion delay, our greatly expanded facilities will supply you with a complete line of LPG equipment, *in quantities to adequately take care of your requirements.*



# RELIANCE REGULATORS

Assure Uninterrupted Service  
for Liquid Petroleum Gas Appliances

PIONEERS  
IN THIS  
FIELD

Reliance Regulators are available for large and small installations with automatic control of multiple cylinder assemblies. They are safeguarded by a safety seal. Two-step reduction eliminates the possibility of high pressures getting into the appliances.

**Reliance Regulator Corporation, 1000 Meridian Ave., Alhambra, Cal.**

tions which can be made from the number of square feet of steam radiation required, it might be well to figure all jobs using  $\frac{G}{2}$  instead

of  $\frac{G}{4}$ . Then correct for insulation in accordance with the last column of percentages given in Table 2.

*What Will the Seasonal Heating Cost Be?* This is going to be one of the first questions that your prospect will ask you, but you will be most unwise if you definitely commit yourself on this subject because of the uncertainties involved. Among these are the following:

1. You may be confronted by an unusually severe season.
2. The customer may not be careful in the use of fuel.
3. The customer may want excessively high temperatures, whereas your estimates are based upon a healthy 70°F.
4. The customer may be an extreme fresh air crank.
5. The building may be much more poorly constructed and insulated than you were led to believe.
6. There may be an increase in the price of fuel.

You will, of course, be pressed for some sort of an estimate as to seasonal heating costs, and before making any statement you should impress upon the prospect that these six variables exist, and that they are factors over which you have no control.

(Part 2 of Chapter 23 will appear in the February issue of BUTANE-PROPANE News.—Editor.)

## Propane Aids Newspaper In Explosion Emergency

As a result of his experiences following the Easton, Pa., gas explosion of Nov. 6 (see BUTANE-PROPANE News, December, Page 17) J. L. Stackhouse, business manager of the *Easton Express*, has described for the Pennsylvania Newspaper Publishers' Association the problems that confronted his paper when its supply of manufactured gas was cut off. His statement, which appeared in the Association bulletin, reads in part as follows:

"Early on the morning of the explosion, we decided to run an extra, which meant that we had to move fast if we were to have enough heat, particularly for the stereotype pot.

"As a matter of policy we have had eight linotypes equipped with electric pots and five intertypes with gas heated pots. In substitution for city gas, we were able to secure bottled propane gas, and in less than two hours all five intertypes were working perfectly. The shut-off valve on the city line was closed just beyond the main and the bottled gas tapped in just beyond the shut-off valve. Slight changes in the burners were easily accomplished.

"Our engraver had bottled gas installed, which is showing better results in sensitizing the metal plates.

"The remelt pot was fired with bottled gas which gave evidence that all gas-fired equipment could have been operated on bottled gas. This included the emersion gas burners, as well as the direct flames underneath the crucibles on the intertypes.

"The cost of the bottled gas used and the expense of installing it will run a little over \$100 for better than two weeks for the five intertypes and the remelt pot."

# Nevada Packer Finds Propane Best Fuel For Smokehouse

**W**HATEVER shortages of hams and bacon there may be in the country, they cannot be charged to the failure of propane to do its full share in the curing process. Particularly is this true in the plant of the Nevada Packing Co. in Reno, Nev., of which J. Blum is manager. There, in a five-day test period, 21,885 lbs. of ham, bacon and 16,318 lbs. of sausage were cured by using LP-Gas at a saving in cost of 33 1/3% over the cost of the manufactured gas formerly

used. One thousand pounds of "Pro Gas" were consumed in the operation.

The installation consists of an eight 200-lb. cylinder hook-up and was installed by Ed Norden, manager of the Reno branch office of the Ransome Co., of Emeryville, Calif. The cost of the installation of burners with automatic controls for the smokehouse was \$150.

The following process is used for smoking meat: Oak sawdust is burned in half-cylinders above 8-ft.



The sales and display room of the Nevada Packing Co., Reno, Nev., whose products of hams, bacon and sausage go to the armed forces and civilians.

# ROADMASTER SALES CORPORATION OF TEXAS

317 SO. PEARL STREET, DALLAS 1, TEXAS

## ANNOUNCES A ONE STOP L.P. GAS EQUIPMENT SERVICE

Factory Sales and Service  
For

Roadmaster Butane-Propane-Natural Gas Carburetion

DISTRIBUTORS & JOBBERS  
OF

BUTANE-PROPANE PUMPS FOR TRUCKS AND BULK PLANTS

METERS FOR ALL PURPOSES

HOSE, COUPLINGS AND FITTINGS

VAPORIZING UNITS

REGULATORS — VALVES — ORIFICES

COMPLETE DISPENSING SYSTEMS CONSTRUCTED

*Contact us for all your equipment. Save your time and traveling.  
Let us supply you. We will make every effort to secure any item for you.*

*Roadmaster offers*

COMPLETE INSTALLATION AND SERVICE WORK IN DALLAS

by

*Truett-Worrall Co. 718 No. Pearl Street*

There are Roadmaster Carburetor Dealers  
and Distributors throughout the South and Midwest  
Served by Roadmaster Sales Corporation



long burners to produce the smoke. Temperature used for tenderized ham starts at 120° external heat, increasing at a rate of 10° every two hours until 190° to 200° are reached. The complete process requires from 12 to 18 hours, according to the size of the hams. At the end of the process the internal temperature of the hams should be 144° to 148°.

For curing bacon 90° to 120° are used over a period of 18 hours. For sausages of all descriptions 120° to 130° are used, working up to 170° over a 12-hour period. In this manner of increasing the temperature, a very thorough job is done with excellent coloring.

Seventy percent of the entire meat curing by the Nevada Packing Co. goes into defense channels, the balance for civilian use.

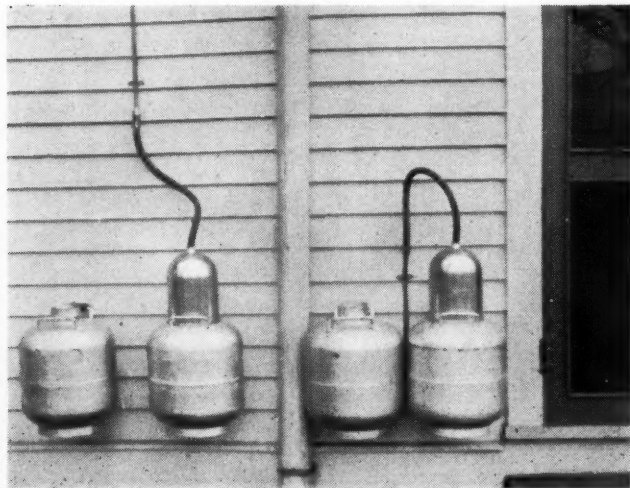
## Preference Ratings Permit Getting Materials Processed

Priorities Regulation No. 3 was completely rewritten Nov. 17 to clarify restrictions on the use of preference ratings.

One important change in the regulation allows preference ratings to be used for the purpose of getting materials processed. Previously, firms were not allowed to use ratings for processing purposes when the item to be processed was for their own individual use.

The three-month limitation on the extension of ratings for any purpose has been changed. Ratings may now be used for purposes other than replacing inventory after three months have elapsed from the time the rating could first have been used.

Copies of PR No. 3 may be obtained from local WPB offices.



▲  
Typical dual bottled gas installation which has come into great demand in the new homes of workers in Ohio's national defense plants.  
▼



# CLOW *Gasteam* RADIATORS

## Combine

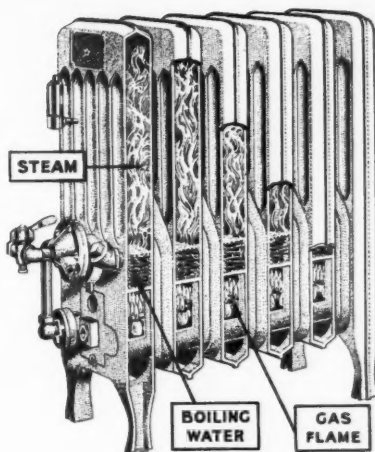
THE SUPERIORITY OF STEAM  
RADIATOR HEATING WITH  
THE FLEXIBILITY OF ROOM  
HEATERS.

1878



1943

*The Radiator That Makes Its  
Own Steam Heat With Gas*



ORDERS WE CAN FILL NOW

**1. Orders accompanied by Ration Certificates:** Local ration boards have the authority to issue ration certificates for Clow Gasteam Radiators (classed as gas-heating stoves in Ration Order 9-A) that are to replace worn-out or otherwise unusable gas heaters. Under certain other conditions the board can also authorize installations in existing buildings. See your local ration board.

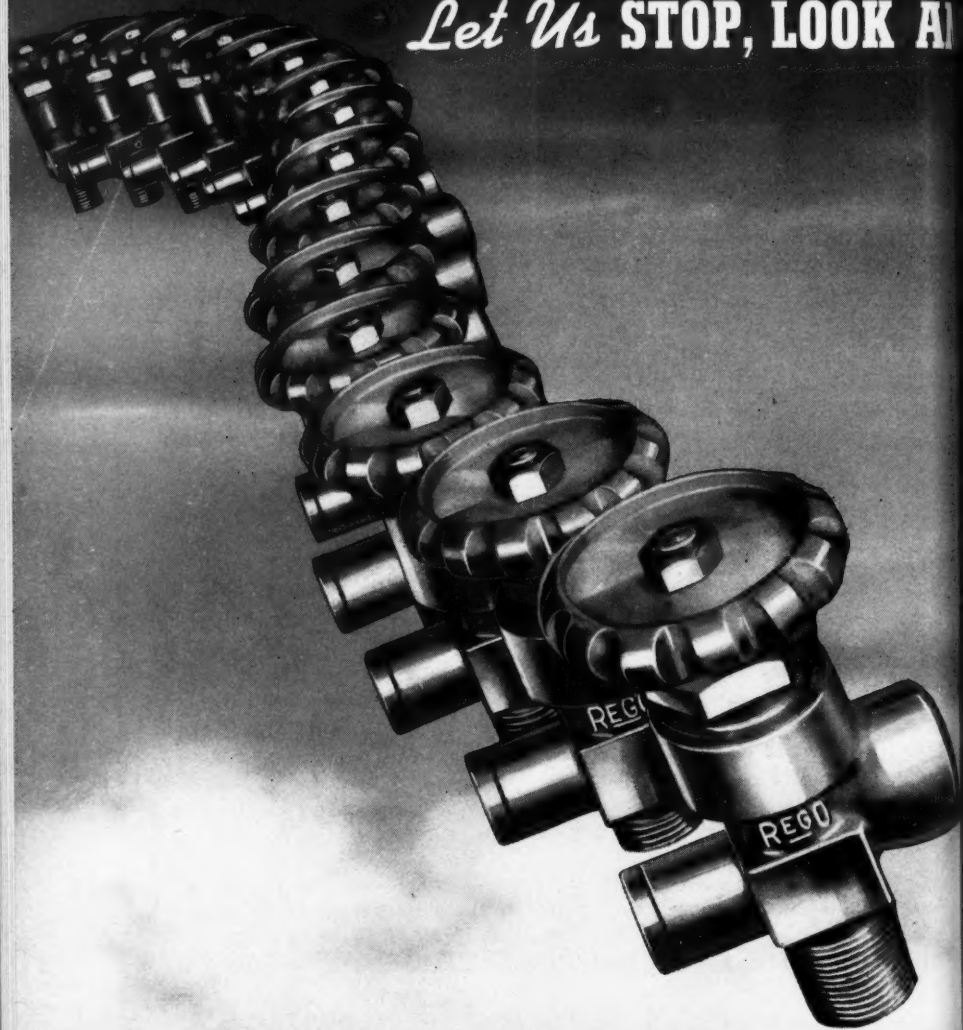
**2. Orders carrying Priority Ratings issued in connection with approved new construction:** Clow Gasteam Radiators can be sold if a priority rating has been issued for them as a part of new construction authorized under WPB Limitation Order L-41.

WRITE FOR FREE DESCRIPTIVE FOLDER

## JAMES B. CLOW & SONS

201-299 N. TALMAN AVENUE, CHICAGO, ILLINOIS

*Let Us* STOP, LOOK AND EN



BUY WAR BONDS  
FOR VICTORY

**REGO**

Pion

# ALLEN On Our Postwar Planning

After Victory is won, and you and I can conscientiously and patriotically cease our war effort and do some real postwar planning, what will you want in the way of LP Gas equipment?

First and foremost you will want, just as quickly as possible, equipment that you can sell and that will stay sold. It is all right for the dreamers and the sales promoters to talk about new and better LP Gas equipment, but honestly you and I know that it will be many months after "V" day before anyone can tool up and produce new products. Surely you will want LP Gas equipment that has acceptance. Neither you nor your customers will want to experiment with new and untried products.

You can rest assured that as soon as practical, The Bastian-Blessing Company will produce newly designed equipment to meet your new demands. This will take time because we always insist on field tests before we offer new products for customer service. While we will be making changes, Rego LP Gas equipment, which has proved itself over long years under actual field conditions, will be ready to serve you.

Season's best wishes



Ellsworth L. Mills

Insure perfect performance and economy by insisting on genuine Bastian-Blessing products identified by the Rego trademark.

*the* **BASTIAN-BLESSING Co.**

4233 Peterson Avenue

Chicago 30, Ill.

Pioneers and Leaders in the Design and Manufacture of Precision Equipment for Using and Controlling High Pressure Gases.





**BUY WAR BONDS**

★  
Share In Tomorrow's  
Better Living

## Mobile GAS LINES to COUNTRY HOMES

Every War Bond you buy today brings nearer the day when you can enjoy a fuller share in the convenience of better living. For instance—

After this war—Butler-Built Liquefied Gas Truck Tanks will make every highway a "gas line" to country homes. A Butler Butane Gas System will connect your home with one of these mobile gas lines—bring you automatic gas cooking, refrigeration, heat and hot water. Plan now to own one of the first when war conditions again permit their manufacture. In the meantime, Buy War Bonds—share in tomorrow's better living.

**BUTLER-BUILT**  
BUTANE GAS SYSTEM

## Sowing Seed Now to Sprout Business for Dealers Postwar

At war's end, possibly sooner, the supplying of Butane Gas, Systems and Appliances will again afford the fastest moving, most promising rural and suburban business opportunity.

Although frozen early by the pressure of war needs, the demand for Butler Butane Gas Systems has increased. Butler is seeing to it that there will be no let-up by continuously maintaining contact with your future customers.

For the past year, each month, a Butler advertisement like the one reproduced at the left has been published in farm papers. Plenty of evidence has come to our attention indicating that many households are doing what the advertisements suggest, i. e., buy War Bonds with an eye toward enjoying the conveniences of better living afforded by Butler Butane Gas Systems.

Now is the time for forward looking dealers to get into a position to capitalize upon the public desire and preference for Butler Butane Gas Systems.

### BUTLER MFG. COMPANY

KANSAS CITY 3, MO.

GALESBURG, ILL. MINNEAPOLIS 14, MINN.

Sales Offices—Washington, New York,  
Chicago, Atlanta, Shreveport.

Export Office—8 So. Michigan, Chicago



Producing  
for War

Planning  
for Peace

BUTANE-PROPANE News

## ***Researchers Seek Best Methods For Preventing Butadiene Fires***

**R**ESearch has been started by the government's Rubber Reserve Co. on ways of preventing loss by fire of butadiene. Butadiene is a highly-combustible, fiercely-burning material used in the manufacture of synthetic rubber for tires and other essentials.

R. W. Hendricks, hydraulic engineer for Underwriters' Laboratories, Inc., in Chicago, is in charge of the project.

In discussing it, he said:

"We hope to develop a method of controlling large-scale fires in butadiene, butene, butalene, and similar materials. An outdoor testing station is now being constructed for this purpose at Baytown, Texas, adjacent to the Humble Oil Refining Co.'s Baytown refinery and a synthetic rubber plant operated by the General Tire & Rubber Co."

One thousand to 30,000-gal. tanks for storing the flammable materials are being installed at the testing grounds, Mr. Hendricks said, along with the necessary piping, water lines, pumping equipment, and other facilities.

Explaining that the materials will be ignited, starting with smaller quantities, he added:

"We then will study the effectiveness of water spray, foam, carbon dioxide, steam, and combinations of these extinguishing agents in controlling the fires."

Mr. Hendricks said that "because of the high intensity of these fires, they did not expect to find ways to extinguish them but merely to discover methods effectively to subdue them and to prevent their spread.

"Butadiene," he explained, "has a

boiling point nine degrees below the freezing point of water. It and the other materials in the same family burn with a violence far greater than that of any gasoline fire, at temperatures ranging possibly from 2500° F. to 4000° F."

In addition to discovering effective methods of fire control, Mr. Hendricks said they hoped to find a way of venting storage tanks to prevent them from tearing under increased pressures that otherwise build up. He described as another objective the finding, if possible, of a satisfactory manner in which to insulate tanks and piping to protect the contents of both from the heat of adjacent fires.

### **Gas Consumer Air Conditioning Bulletin Published By AGA**

"Gas Summer Air Conditioning," now available to the industry, is the largest and most complete research publication yet issued by the American Gas Association Testing Laboratories. It is designated as Bulletin No. 18.

Summarizing two years' intensive study conducted under the supervision of the Joint Committee on Gas Summer Air Conditioning and its Technical Advisory Committee, the new bulletin presents information of real value to all interested in the summer air conditioning field. Such units can be operated on LP-Gases as well as on natural and manufactured gases. It is especially timely in view of the importance of air conditioning to so many consumers and the rapid growth of this industry anticipated in the post-war period.



## Lester Kling, San Diego Dealer Buys Dual Transport Truck

For many years Lester Kling, of the Rockgas Service Co., San Diego, made before-dawn trips to Huntington Beach, Calif., where he filled a 1500-gallon tank with Rockgas, thereafter returning to San Diego to distribute the gas.

Eventually, propane had to be substituted for isobutane, necessitating larger equipment, and a truck which would haul either butane or propane. The Fruehauf tandem axle, semi-trailer, pulled by a three-ton White tractor-truck, shown below, was chosen, therefore, for the job.

The spheres, built by Superior Tank and Construction Co., Los Angeles, are ½-in. thick, X-rayed, with a capacity of 1640 gallons of propane and 1750 gallons of butane. The small platform between the spheres carries 30 100 lb. propane cylinders when the cylinders are transported between San Diego and Huntington Beach, where they are reconditioned and retested, and the spheres filled.

A unique feature of the truck is

the Smith pump which is driven through a gear mechanism built into the tractor and trailer so that when connected the small gears for the driving mechanism mesh properly, thus transmitting power from the engine to the trailer.

## Silver Star Awarded Former Regulator Assembler

Sgt. Frank C. Cali, who before the war assembled many an LP-Gas regulator in the Chicago plant of The Bastian-Blessing Co., has won the "Silver Star."

This decoration was conferred by the government for his courage and devotion to duty when his company crossed a river ford in Tunisia under direct machine gun, mortar and anti-tank fire and he remained behind to assist his comrades in the recovery of mired vehicles. He was instrumental in evacuating two seriously wounded men and in recovering several vehicles.

Member of a tank battalion, Sgt. Cali, technician fourth grade, has since been in the Sicily invasion.



Another transport truck will help relieve rail tank car shortage.





**I'M SELLING THE BIGGEST  
BUSINESS-BOOSTER  
THERE IS...TODAY!**

"**Maybe** I can't make delivery on new appliances today, but I'm still selling the biggest thing to expand my business there is—goodwill! I'm building for the day when I will have products to sell by keeping my customers satisfied with their present L-P gas equipment. You see, I figure enthusiastic customers are going to be my best prospects for additional appliances after the war."

"Goodwill isn't hard to sell, either. I just drop in to discuss a customer's present L-P gas appliances whenever I make a gas delivery. Most times everything is in good working order, but my stopping in seems to keep customers extra enthusiastic about my service and L-P gas appliances."

• • •  
"SATISFIED CUSTOMERS TODAY... MEAN  
MORE PROSPECTS TOMORROW"



**FREE L-P REFRIGERATOR  
SERVICE MANUAL**—Write  
today for your free copy to  
Servel, Inc., Evansville, Ind.

**SERVEL,**

*Incorporated*



**PEACETIME MAKER OF THE**

**SERVEL GAS REFRIGERATOR**

## **"Cap" Fisher, Bryant Heater, Passes Away in Cleveland**

John M. Fisher, regional manager for The Bryant Heater Co., died at St. Luke's Hospital, Cleveland, on Dec. 14. He was better known to his friends and associates as "Cap" Fisher.

Very few men have had such a colorful and interesting career. Canadian born, he enlisted in the Canadian army at the outbreak of World War I, served three years in France, and then joined the British Secret Service when volunteers were requested to undertake a dangerous mission in the Middle East. This led to a series of interesting and important adventures in Mesopotamia similar to the exploits of Lawrence in Arabia.

Mr. Fisher attained the rank of major and received many decorations as a reward for his accomplishments and bravery.

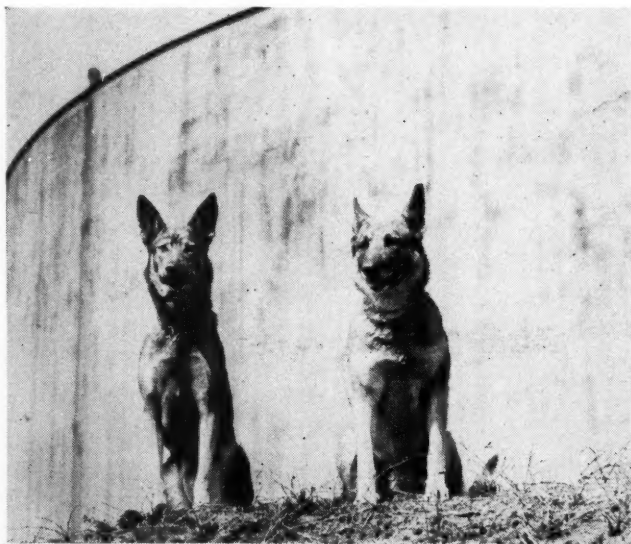
After the war, he spent several years with the Anglo-Persian Oil Company in Persia and India, engaged in drilling operations in Mexico, then entered the gas heating business in 1926.

In 1933 he joined The Bryant Air Conditioning Corp., Chicago, and came to Cleveland in 1939 as regional manager for The Bryant Heater Co. He became very well known throughout the gas industry.

## **Amendment Brings Water Heater Orders Under One Division**

An amendment of Dec. 8 to L-188 redefines "direct fired water heater" to exclude water backs which are controlled by L-23-c.

The amendment also brings all hot water storage systems under jurisdiction of the Plumbing and Heating Division, and clarifies the definition of copper coils and tubular units which may be manufactured.



### **GUARDING FUEL FOR FLYERS**

These police dogs are on duty at one of the large Shell Oil ocean terminals on the Atlantic seacoast guarding one of the huge tanks of high octane aviation gasoline from any possibility of sabotage before its shipment to the various battlefronts. Dog patrols have proved so successful that they have been installed at many of the Shell terminals handling vital war products.

DALLAS TANK & WELDING COMPANY, INC.

# BUTANE DIGEST

By W. W. BANKS



To our friends and customers everywhere, we wish you health, wealth and happiness for the New Year. Let us all put our shoulders to the wheel and pull together for final victory.

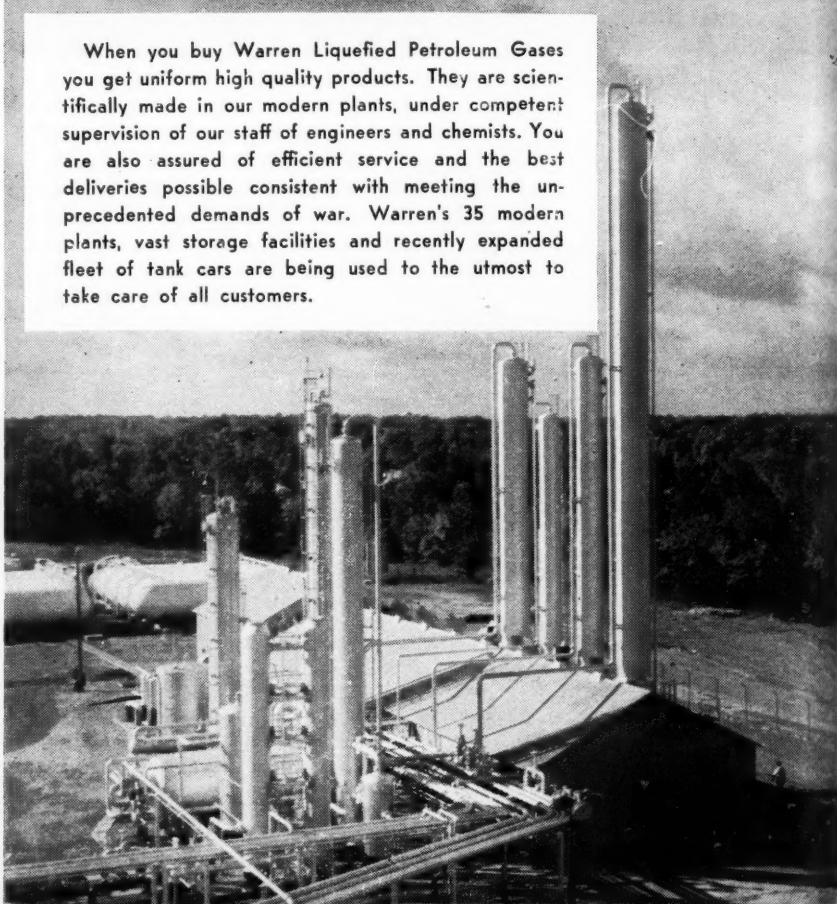
*Buy More War Bonds!*

**DALLAS TANK**  
AND  
**WELDING COMPANY, INC.**  
201-5 W. COMMERCE ST. DALLAS, TEXAS

# WARREN

## LIQUEFIED PETROLEUM GAS

When you buy Warren Liquefied Petroleum Gases you get uniform high quality products. They are scientifically made in our modern plants, under competent supervision of our staff of engineers and chemists. You are also assured of efficient service and the best deliveries possible consistent with meeting the unprecedented demands of war. Warren's 35 modern plants, vast storage facilities and recently expanded fleet of tank cars are being used to the utmost to take care of all customers.



**WARREN PETROLEUM CORPORATION**

Tulsa, Oklahoma

## **New 100-Octane Plant Being Built By Texaco**

Foundations for a giant \$16,000,-000 refinery to produce 100-octane aviation gasoline have been laid by the Texas Co. in the Los Angeles Harbor area. According to Torrey H. Webb, vice-president, the plant is expected to be in full operation by next July.

"Within six months after Pearl Harbor," said Mr. Webb, "Pacific Coast plants of Texaco had increased their output of 100-octane gasoline 50%. Today it is up more than 300%, and by next July we will be producing 600% more on the Pacific Coast, alone, than in the first year of our participation of the war."

## **Exclusive Stove Sales O.K. Under Special Limitations**

OPA has announced that manufacturers or distributors of stoves who had entered into arrangements before Dec., 1942, for certain companies to sell their stoves exclusively in an area may continue these arrangements and thus permit these dealers to maintain the goodwill they have built up.

This permission to continue exclusive sales understandings will only be granted if the seller made no sales of stoves to any other dealer or distributor in the area than the one with which the arrangement is made. This does not, however, include sales made under WPB priorities prior to Aug. 19, 1943.

## **Valve Shortage Relieved By Changed Conditions**

Manufacturing facilities not needed for top priority cast steel valves, used in synthetic rubber plants and high octane refineries, are being released for the production of semi-steel valves, relieving a critical shortage

and giving evidence that manufacturers are getting "over the hump."

The Merco Nordstrom Valve Co. reports near completion of orders for the top priority valves, and expects to have these valves available for other uses within 90 days. War orders required a 600% increase over normal plant capacity for a short period, according to Col. W. F. Rockwell, president of the company.

## **Helps for Fire Guards Found in Two New Books**

Of general interest, because of the importance attached to fire guards throughout the country, are two new books which have been published by the Office of Civilian Defense, Washington, D. C. They are, "Fire Guard Instructor's Manual" and "Handbook for Fire Guards." Both were prepared under the supervision of L. W. Hutchins, managing director of Safety Research Institute, New York City, while he served as chief of the fire education unit of the OCD.

Classes of fires are described and methods of fighting them explained, making the book valuable to plant owners as well as to fire guards.

## **W. B. Kirk, AGA Testing Laboratories, Joins Navy**

Walter B. Kirk, assistant chief research engineer of the American Gas Association Testing Laboratories, has been commissioned a lieutenant, junior grade, in the U. S. navy. Volunteering for special duty, he reported to Princeton University on Sept. 15, for basic training and indoctrination, following which he was slated for sea duty as deck officer on one of our fighting "small craft."

Before Lieutenant Kirk left the Laboratories to report for naval duty, a handsome wrist watch was presented to him as a token of esteem.

## **OPA Issues Order Governing Used Pressure Vessels**

A regulation which became effective recently, fixing maximum prices for all sales of used pressure vessels and used enclosed atmospheric pressure vessels has been issued by OPA.

The term "pressure vessel" includes any cylindrical vessel made of black steel which is capable of holding any liquid or gas at a higher pressure than atmospheric pressure. The term "enclosed atmospheric pressure vessel" means any cylindrical vessel made of black steel which is capable of holding any liquid or gas at pressures not in excess of atmospheric pressure.

The new regulation *does not apply to the following vessels*: (1) Shop fabricated and field-erected vessels; (2) field fabricated and field erected vessels; (3) high pressure cylinders which have a water capacity of 1000 lbs. or less and are used for storing liquids or gases at pressures up to 3000 lbs. per sq. in.; (4) range boilers or expansion tanks; (5) domestic aboveground fuel oil storage vessels; (6) pressure vessels or enclosed atmospheric pressure vessels lined with materials such as glass or vitreous enamel. Generally the specific maximums reflect the March 31, 1942 levels. For pricing sizes or types of vessels not specifically listed in the regulation, dealers will continue to use the formula method transferred from the machinery price regulation (MAXIMUM PRICE REGULATION 136).

The new regulation requires dealers to clean thoroughly the inside and outside of these items by the use of hot alkali, live steam, sandblasting, or by any other machine or hand applied abrasive method. The vessel must be as free from leakage as a new vessel. Sellers must certify that the vessel has been reconditioned in

accordance with the provisions of this regulation and it must be guaranteed for a period of 60 days after installation or 75 days from the date of shipment whichever is the longer period.

## **WPB Field Offices Will Handle Housing Project Refrigerators**

Effective early in December, all WPB-882 (formerly PD-427) applications covering domestic mechanical refrigerators for privately financed war housing projects of the Federal Housing Administration, constructed under Preference Rating Orders P-55 and P-55-b and publicly financed conversion projects handled by Home Owners Loan Corp. for the National Housing Agency must be filed with the War Production Board field office having jurisdiction over the area in which the project is located, according to F. M. Mitchell, of the WPB.

Federal Public Housing Authority projects constructed under Preference Rating Order P-19-h are not affected by this new procedure for processing applications.

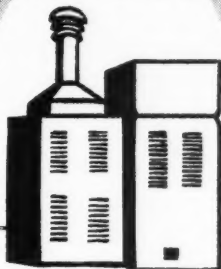
## **Safety Council Reorganizes Industrial Division**

The industrial safety engineering division of the National Safety Council has recently been reorganized, and will expedite the provision of safety information in the various mediums through which the council carries on its campaign.

The new plans make full use of the industrial membership sections as centers for the accumulation and distribution of all safety information, such as the Safe Practices Pamphlets, Industrial Data Sheets, Engineering Summaries, Safety Instruction Cards, and other materials furnished by the council.



# SOLVES YOUR FUEL PROBLEM



Utilities and war industries solve their fuel problems with an ALGAS installation of GASAIR Units—distributing butane-propane and air mixtures. Efficient, economical, works just like natural gas.

## For Permanent or Stand-by Use

An ALGAS Installation automatically operates to increase gas pressure during peak hours, blending its fuel with piped gas. Boosts heat unit value! May be used to replace other fuels altogether—for short periods or continuous operation.

*Service Available Throughout U. S.  
Illustrated Brochure Available to  
War Plants and Gas Companies.*



Think American

**AMERICAN LIQUID GAS CORPORATION**  
**1109 SO. SANTA FE AVENUE • LOS ANGELES, CALIF.**

## **A. W. Humm Elected Vice Pres. Of Hixson-O'Donnell**

Albert W. Humm has been elected a vice president of Hixson-O'Donnell Advertising, Inc., New York. Mr. Humm has been associated with the firm for the past two years, in charge of the public utility and home appliance accounts.

Mr. Humm has originated many productive sales promotion and advertising campaigns for manufacturing and utility concerns in his 30 years in the advertising field. He was formerly advertising and sales promotion manager of Standard Gas Equipment Corp., was active in the work of the American Gas Association, and in previous advertising agency connections created and placed national campaigns for gas appliance, gas equipment and gas refrigerator manufacturers.

## **Fred Henninger Finds Time to Hunt In Addition to Navy Duties**

Lt. F. A. Henninger, who has been located in Sanford, Fla., with the navy department, has been transferred to Beaufort, S. C.

Inadequate housing facilities have compelled Lt. Henninger to locate his family, temporarily, in a small cabin 35 miles away from the base where he spends most of his time. This gives him opportunity to enjoy some of the excellent hunting that is available near Beaufort. So far, he has killed one deer, and many game birds, besides doing considerable fishing.

Mr. Henninger says the locality surrounding Beaufort offers an ideal field for the distribution of butane, inasmuch as most residents are using old fashioned methods of cooking and heating.

Mr. Henninger, formerly with the

McNamor Boiler & Tank Co., may now be reached by addressing him as follows: Lt. F. A. Henninger, VB2-1 NAS, Beaufort, S. C.

## **Truck Operators Get Relief From Exhaustive Reports**

Holders of Certificates of War Necessity covering commercial motor vehicles have been issued Administrative Order 9 by the ODT which provides for simplified record keeping.

Now, only six simple questions are asked about truck operations on the new report form, superceding quarterly operation reports and monthly idle truck reports. These questions are:

1. Number of power units operated.
2. Miles operated by vehicles owned.
3. Tons or gallons transported.
4. Number of gallons of motor fuel consumed in owned vehicles.
5. Miles operated with leased vehicles.
6. Number of truck-days lost because of manpower, lack of business, shortage of tires or parts.

## **AGA Issues Directory For Final Quarter of 1943**

The Directory of Approved Gas Appliances and Listed Accessories of the AGA, issued quarterly, is now available for the final quarter of the year and lists equipment currently produced.

The directory is available at \$2 per year, including monthly supplements, or at 35 cents per copy for the quarterly issues, from the American Gas Association, Testing Laboratories, 1032 E. 62nd St., Cleveland 14, Ohio

# There's a Great Day Coming



CARE AND OPERATION  
of the new  
ROPER GAS RANGE


OVEN DIRECTIONS


TOP-OF-RANGE DIRECTIONS

BROILING DIRECTIONS

CANNING DIRECTIONS

It's important to tell her how to care for the gas range in her kitchen, how to make it last. The Roper "Care and Operation of the Gas Range" booklet does just that. Write for Free sample copy containing useful information.

When V-Day brings our victorious fighting men home from the global war fronts, your customers will require many important things for their homes. One of these will be the new Roper  gas range—a range that has always been America's finest in terms of customer appeal.

After the war the Roper  gas range will march along from where it left off—giving you distinctive styling, practical engineering, new features, and sound, hard-hitting promotions.

Until that great day comes, urge your customers to Buy More War Bonds and do everything else to hasten the day of Victory. That includes taking good care of the ranges they now own.

**ROPER**  Means

Certified Performance

**GEO. D. ROPER**  
CORPORATION  
GENERAL SALES OFFICE AND PLANT ROCKFORD, ILLINOIS



ROPER GAS RANGES FOR ALL GASES INCLUDING (LP) LIQUEFIED PETROLEUM GAS

JANUARY-1944

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## **Pressed Steel Tank Co. Names Anchor Mexican Representative**

The Anchor Petroleum Co., of Tulsa, Okla., has been appointed exclusive representative for the sale of Pressed Steel Tank Co.'s Hackney liquefied petroleum gas cylinders in the Republic of Mexico. This arrangement became effective Nov. 2, 1943.

Because of its experience in the butane-propane field, the Anchor Petroleum Co. is well qualified to meet the requirements in handling the Mexican sale of Hackney cylinders. Its terminal for shipping into Mexico is located at Laredo, Texas. At this point, there are facilities for storage of liquefied petroleum gases, equipment and other appliances. Hackney cylinders can be filled with gas at Laredo by Anchor prior to shipment into Mexico.

## **Hotstream Sales Manager, Geo. G. Gebhart, Passes Away**

After an illness of more than a year, George Grove Gebhart, of The Hotstream Heater Co., passed away in Cleveland, O.

A native of Dayton, O., Mr. Gebhart had been sales manager for manufacturing concerns there and at Mansfield before going to Cleveland.

During the 21 years that he was identified with The Hotstream Heater Co. Mr. Gebhart worked in the capacity of manager of the sales department.

## **Butane Tank Weighing 60 Tons Split in Sections and Moved**

When the LP-Gas town plant of the Natural Gas Co., of La Grande, Ore., was recently sold to the California-Pacific Utilities Co. (see BUTANE-PROPANE News, Page 76, Sept., 1943), there was one 60-ton butane tank that was not included in the deal.

The former owners, Mrs. Nettie M. Wauge and son, disposed of this storage tank to the Portland (Ore.) Gas and Coke Co. To permit removal by truck the tank was split in two parts and the sections, each weighing 30 tons, were trucked to Umatilla on the Columbia river. There they were loaded on a barge for the remainder of the journey.

## **Reduced Rail Rates On LP-Gas Effective Nov. 30**

In a recent bulletin issued by the Liquefied Petroleum Gas Association it is stated that the Rate Case Fund Committee advises that, effective Nov. 30, the ICC, by order entered, suspends until June, 1944, proposed rate increase on liquefied petroleum gas as published in all supplements but permitted reduced weights to become effective.

Those coming under these tariffs will enjoy the benefit of present rates as applied to reduced weights until further order. The committee suggests: "Those who do not come under tariffs above listed should immediately demand from their railroads reduction in weights and notify these carriers that you otherwise expect to recover reparation on all shipments made on and after Nov. 30, 1943. If the carriers do not cooperate with you on this matter you will be entitled to inaugurate individual proceedings after the Commission has fixed the rates in the suspension proceeding. It is a foregone conclusion that you will win the reparations as a matter of course."

The Rate Case Fund Committee also advises that "immediate savings to LP-Gas shippers in the southeast and the south amount to 29% of their car-lot shipments as of Nov. 30 and until further notice. A hearing will be held in Washington on Jan. 12."

**FOR VICTORY IN WAR...**



**FOR PROGRESS IN PEACE**



The best money in the world is that of the good old U.S.A. It always has been—always will be!

And the best bank in the world is the Treasury of the United States of America. . . . Now Uncle Sam is asking for fourteen billion dollars of your money and ours . . . \$14,000,000,000 to reach the goal set for the fourth war loan

drive. So our dollars go to war, to help win victory. And when they return to us, with interest, they will be the basis of our progress in the peacetime conduct of your business and ours. . . . Only adequate war financing can give American forces and our allies the things they need. The only answer is — buy more War Bonds.



**A. J. Lindemann & Hoverson Co.**

MILWAUKEE • Since 1875 • WISCONSIN

**KEROGAS**

MANUFACTURERS OF ELECTRIC RANGES  
GAS RANGES.. OIL STOVES . PORTABLE OVENS

ELECTRIC WATER HEATERS  
OIL HEATERS...WICKS

**ALCAZAR**

JANUARY-1944

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## **Payne Furnace & Supply Co., Inc. Awarded Army-Navy "E"**

In a colorful ceremony attended by more than 1000 plant officials, workers and their families, army and navy officers and civic leaders, Payne Furnace & Supply Co., Inc., Beverly Hills, Calif. was awarded the Army-Navy "E" for outstanding performance in production of materials for war on Nov. 5.

E. L. Payne, vice president and general manager of the company, accepted the award presented by Major Walter F. Zwick, U. S. Army Air Force. Employee emblems, presented by Ensign Marcia Doyle, U.S.N.R. were accepted by Ruby Sorber, representing women employees, and Lee Laporte, representing the men. Major Howard H. Adams, U. S. army air force, was master of ceremonies.

Mr. Payne has long been identified with the gas industry on the Pacific Coast, and is this year serving as president of the Pacific Coast Gas Association. His son, Gordon L. Payne, cadet officer candidate at Stanford University, was a member of the honorary color guard at the ceremony.

Payne Furnace has been 100% converted to war production for some time, making field photographic equipment for the air force and parts for plane manufacturers, besides holding other secret army and navy contracts.

## **Butylene Will Be Produced At New Gulf Oil Plant**

J. Frank Drake, president of the Gulf Oil Corp., has announced that the company has put into operation a Thermoform catalytic cracking plant at its Port Arthur, Texas, refinery. The new units, the second of this type to be completed since its development several years ago, produce butylenes, the basic ingredient of butadiene used in the manufacture of synthetic rub-

ber, and also a blending component of aviation grade gasoline.

The butylenes will be turned over to the nearby Neches Butane Products Co. plant, organized jointly by Gulf Socony-Vacuum, Texas, Atlantic, and Pure Oil Companies, where it will be further processed into butadiene. This will be sold to rubber companies for the manufacture of synthetic rubber.

## **WPB Has New Booklet On "Products and Priorities"**

A new publication, designed to aid business men and Government officials in obtaining information on all products, materials, and service handled by the War Production Board is now being issued by WPB every four weeks.

The publication, titled "Products and Priorities," includes all information formerly contained in "Priorities" and in "Product Assignments," both of which will be discontinued. A year's subscription of 13 issues may be obtained for \$2 from the Superintendent of Documents, U. S. Government Printing Office, Washington, D.C. Single issues will be available at 20 cents each.

A feature of "Products and Priorities" is a master alphabetical index listing every product, material, or service which comes under WPB supervision or control. This will enable business men and others to determine easily the numbers of any applicable WPB orders and forms, all necessary CMP references, and the WPB Division and section responsible for the product, material, or service.

"Products and Priorities" will also include a list of Claimant Agencies, Claimant Agency program symbols, and, in subsequent issues, other information for which a public need is indicated.



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# **ENSIGN**

## **BUTANE-PROPANE CARBURETORS**



### *Working for Victory*

ENSIGN Butane-Propane Carburetors are playing an important part in the Victory effort. We are proud of this fact and are devoting our modern facilities and long experience to the successful completion of this assignment. Helping to win the war is our chief duty at this time.

### *But still available*

#### **ON THE HOME FRONT**

However, ENSIGN Carburetors for Butane-Propane and Gasoline are still available for uses not directly connected with the war effort. It may take us a little longer than usual to supply the demand for carburetors, but quick delivery of emergency parts is assured. Now, as always, ENSIGN is unequalled for efficient and economical carburetion.



# **ENSIGN**

**CARBURETOR CO., LTD.**  
**HUNTINGTON PARK • CALIFORNIA**

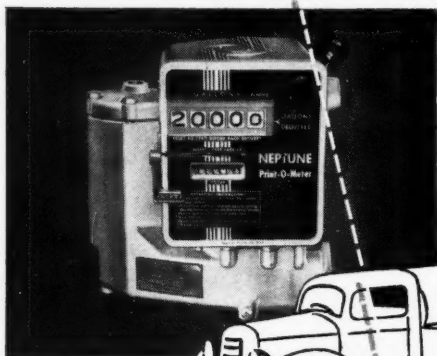
**Before ordering ENSIGN Butane-Propane Carburetion Equipment or Parts, read W.P.B. General Limitation Order L-86. Copies can be obtained from your nearest W.P.B. office.**

# Guardians

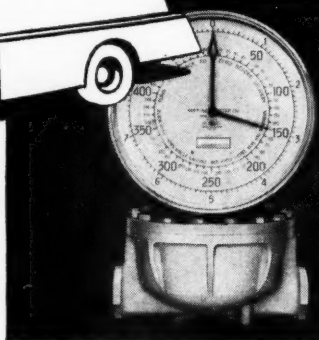
## OF LP PROFITS

Accurately measured flow assures all profits "present and accounted for." Distributors of LP gas who meter through the ticket printing Red Seal Meter have been proving it daily for years—over-deliveries are avoided, handling is speeded, customer confidence is maintained. Not only is the printed record dispute-free, but every gallon delivered is matched with every metered gallon put into the truck.

Guard your profits with Neptune Red Seal Meters. These carefully engineered cost-control devices have an enviable record for sustained accuracy, low upkeep, easy maintenance and long life. Learn all about dependable Neptune LP meters for tank trucks and loading racks. Complete information on types and sizes is yours on request.



*Above: Red Seal Compact Type LP-Gas Meter—a complete space-saving unit with Print-O-Meter Register. At right: 2" Type D Meter for loading rack service.*



# NEPTUNE RED SEAL METERS

NEPTUNE METER COMPANY

MAIN OFFICE: 50 WEST 50TH STREET, NEW YORK 20, NEW YORK

BRANCH OFFICES: Chicago, Dallas, Denver, Kansas City, (Mo.), Los Angeles, Louisville, Philadelphia, Portland, (Oregon), San Francisco, and Long Branch, Ont., Canada.

## NFPA Publishes Comprehensive Book on Fire Codes

A 504-page book entitled "National Fire Codes for Flammable Liquids, Gases, Chemicals and Explosives, 1943" has been published recently by the National Fire Protection Association. The book brings together the many standards dealing with these hazards. It supercedes the "National Fire Codes for Flammable Liquids and Gases, Edition of 1938."

This new volume is divided into nine parts as follows: Flammable Liquid Storage and Handling; Oil and Gasoline Burning Equipment; Liquefied Petroleum Gases; Utilization of Flammable Liquids; Gases; Refrigeration and Fumigation; Explosive and Nitrocellulose Materials; Tables of Properties — Hazardous Chemicals, Flammable Liquids; Flash Point Tests.

The several codes are in the form

of suggested ordinances, standards or recommended good practice requirements. They are universally recognized and used as the authoritative guides to the best practice. Irrespective of their form, the codes are purely advisory as far as the NFPA is concerned. They are, however, widely used as a basis of law, or by administrative authorities in the exercise of their discretionary power, as well as by property owners as a guide to good practice, and for insurance purposes. In preparing all standards the aim of the NFPA committees has been to specify measures that will provide reasonable fire safety without prohibitive expense, or undue inconvenience.

The book contains many tables and drawings. Page size, 6 x 9, bound in substantial red cloth covers. The price is \$3 per copy postpaid. Address National Fire Protection Association, 60 Battery March St., Boston, Mass.

### PRODUCTION AND DISTRIBUTION OF LP-GASES\* IN UNITED STATES

(Thousands of Gallons)

	Oct. 1943	Sept. 1943	Oct. 1942	Jan. - Oct. 1943	Oct. 1942
Production:					
Isobutane at natural gaso- line and cycle plants..	16,338	15,120	9,240	134,652	82,698
Other LP-Gases at nat- ural gasoline and cycle plants .....	71,862	64,638	58,590	678,804	544,530
Total .....	88,200	79,758	67,830	813,456	627,228
Demand:					
LP-Gases and benzol used at refineries .....	41,244	41,832	33,222	370,356	329,532
LP-Gases for fuel.....	36,792	31,752	27,846	327,012	238,392
Total .....	78,036	73,584	61,068	697,368	567,924
Stocks (End of Month)					
LP-Gases .....	45,066	42,504	20,286	45,066	20,286

\* Liquefied refinery gases not included. Extracted from October 1943 natural gasoline report of U. S. Bureau of Mines.

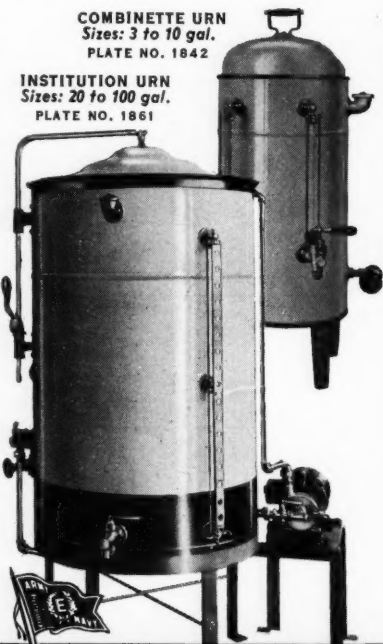
# VICTORY COFFEE URNS

FROM 3 TO 100 GALLON CAPACITIES

• Now available on suitable priorities these attractive urns have been designed for use with butane-propane. Made of high quality enameling iron, completely welded. Finished in vitreous porcelain enamel. Inside corners fully rounded. Liner welded to jar ring, forming integral, crevice-free unit. Other liners available of heat-resistant glass or Hall china, sizes up to 10 gallons. Selection includes Combinette urns, batteries and large-capacity institutional urns . . . Send for illustrated folder with specifications; also our Priority Assistance Kit.

COMBINETTE URN  
Sizes: 3 to 10 gal.  
PLATE NO. 1842

INSTITUTION URN  
Sizes: 20 to 100 gal.  
PLATE NO. 1861



**S. BLICKMAN, INC.**

Manufacturers of Food Service Equipment  
2101 Gregory Ave. • WEEHAWKEN, N. J.

## Check Fire Extinguishers For Winter Weather

SEVERAL common types of fire extinguishers are subject to freezing and, if allowed to do so, may be rendered inoperative or even dangerous to use.

Soda-acid, foam and gas cartridge extinguishers must be kept in relatively warm locations (above 40° F. to be safe) or in suitably heated cabinets. The National Board of Fire Underwriters specifies that cabinets for use in sub-zero climates be of 7/8 in., double-wall construction and be heated by a continuously burning incandescent lamp of not less than 50 watts. Single-wall enclosures, similarly heated, are suggested for locations where temperatures below zero F. are not encountered.

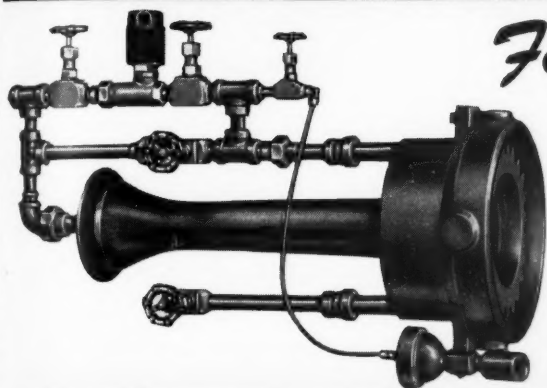
Anti-freeze chemicals, such as common salt, calcium chloride and glycerine, should not be added to extinguishers of these types, since foreign ingredients may reduce the effectiveness or change the nature of the discharge, or corrode the parts and make the extinguishers dangerous to use.

Pump tank and gas cartridge extinguishers can be protected by adding anti-freeze chemicals supplied by the manufacturer. Chemicals other than these should not be used, however, as they may cause corrosion.

Extinguishers which do not require protection from freezing are the vaporizing liquid, carbon dioxide, and loaded steam types. The first two contain no water; the latter does contain water, but has chemicals added which depress the freezing point.

Since the sale of all Underwriters' Laboratories approved extinguishers is now subject to priority restrictions, careful maintenance, including protection against freezing and an annual inspection and recharge, is doubly important.

# LIQUID BUTANE BURNERS



*For Intense  
Heat  
and  
CLOSE  
REGULATION*

**Ransome Liquid Butane Burners** are widely used for direct firing into blowers and air ducts of dehydrators, dryers, kilns, retorts, and roasters.

Direct firing eliminates all temperature lag or over-run as there is no fire box to heat or cool. Control of heat to one degree is both possible and practical. It's highly advantageous in dehydrating where much waste results from over- or under-heating.

This burner is easy to install and burns clean . . . without a trace of soot. Recommended for the larger types of installations, either as original equipment or as standby to natural or manufactured gas from a public utility line.

## RANSOME COMPANY

*Designing and Constructing Engineers*

4030 HOLLIS STREET • EMERYVILLE, CALIFORNIA

*Ransome*

## Venting of Tanks Exposed To Fire Explained in Book

A booklet entitled "Venting of Tanks Exposed to Fire" has been published by the National Fire Protection Association, reprinted from the Association's Quarterly of October, 1943. Written by James J. Duggan, C. H. Gilmour and P. F. Fisher, the pamphlet is a condensation of a paper, "Requirements for Relief of Overpressure in Vessels Exposed to Fire" presented to the Petroleum Division of the American Society of Mechanical Engineers in 1943.

The paper deals with the relief of excessive internal pressure due to heat, namely, relief areas, relief connections, and calculated flow capacities of free areas, and is not a discussion of relief devices or apparatus, relative merits of types, etc.

Part 1 of the booklet describes tests

and experiences with vessels enveloped in flame, and sets forth an observed rate of heat absorption. Parts 2 and 3 state the theory on which the solution is based and express it mathematically in simple, useful formulas for unfired pressure vessels and atmospheric tanks in either gas or liquid service.

## New Aviation Gas Plant Will Have Huge Capacity

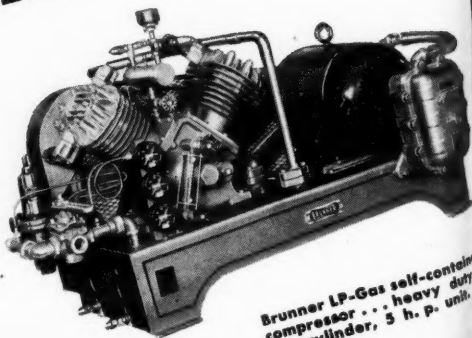
The Standard Oil Co. of Ohio has announced it is constructing an \$8,500,000 aviation gasoline plant at its No. 1 refinery in Cleveland.

The new plant is expected to be in operation some time next spring. Its capacity, the company said, would be "more than sufficient to carry 100 heavy four-engine bombers on a round trip between the British Isles and Berlin every 24 hours."

# 500 TO 1000 LBS. LP-GAS SAVED

Per Tank Car wherever Brunner Units Operate

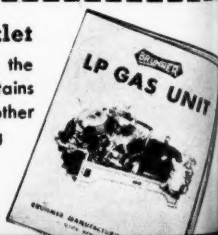
Liquid Petroleum Gas operators using the Brunner LP-Gas Unit recover 500 to 1000 lbs. of gas from every tank car unloaded. This saving alone quickly pays for the initial cost of the Brunner self-contained unit. And because LP-Gas is a necessity in many defense areas, this gas saving is important as a conservation measure. Brunner Manufacturing Company, Utica, New York, U. S. A.



Brunner LP-Gas self-contained compressor . . . heavy duty cylinder, 5 h. p. unit.

## Write for FREE Booklet

The new booklet describes the Brunner LP-Gas Unit, contains illustrations, diagrams and other pertinent facts on handling liquid petroleum gas.





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UNIT



# Handbook BUTANE-PROPANE GASES

**181 Pages of Up-to-Date LP-Gas Information, Charts, Diagrams and Photographs**

**\$5<sup>00</sup>**

## CHECK THE NEW CONTENTS

### PART 1. INTRODUCTION

- Chapter 1: The Progress of the Industry and the History of its Development.
- Chapter 2: The ABC of LP-Gas, an Introduction to LP-Gas Operations.

### PART 2. PHYSICAL AND CHEMICAL PROPERTIES

- Chapter 1: Properties of the Hydrocarbons in LP-Gas.
- Chapter 2: Properties of Butane-Propane Mixtures.
- Chapter 3: Volume Correction Factors.
- Chapter 4: Analytical Determination and Testing.

### PART 3. PRODUCTION OF LP-GAS

- Chapter 1: Natural Gasoline Plants, Recycling Plants, Oil Refineries.

### PART 4. TRANSPORTATION AND STORAGE

- Chapter 1: Delivery by Truck, Rail, Water, and Pipe Line.
- Chapter 2: Storage Tank and Pressure Vessel Design.
- Chapter 3: Liquid Metering and Pumping Systems.

### PART 5. DISTRIBUTION OF LP-GAS

- Chapter 1: Installing and Servicing LP-Gas Systems.
- Chapter 2: Semi-Bulk Systems.
- Chapter 3: Bottled Gas Systems.

- Chapter 4: Gas Utility Service From Central Plants.
- Chapter 5: Multiple Utility Service From a Central Plant.

### PART 6. UTILIZATION OF LP-GAS

- Chapter 1: Comparative Performance With Other Fuels.
- Chapter 2: Appliance Installation and Testing.
- Chapter 3: Domestic Applications.
- Chapter 4: Commercial Applications.
- Chapter 5: Industrial Applications.
- Chapter 6: Enrichment, Peak Load and Stand-by Uses.
- Chapter 7: A Fuel for Internal Combustion Engines.

### PART 7. REGULATIONS

- Section 1: N.B.F.U. Pamphlet No. 58.
- Section 2: Motor Carrier Regulations.
- Section 3: Freight Regulations.
- Section 4: Unloading Tank Cars.
- Section 5: Marine Regulations.

### PART 8. APPENDIX

- Section 1: Products Liability Insurance.
- Section 2: Handy Tables for Field Use.
- Section 3: Bibliography.
- Section 4: Glossary of Terms.

### CATALOGUE SECTION

A comprehensive presentation of LP-Gas appliances and equipment by the manufacturers of the LP-Gas industry's best known products.

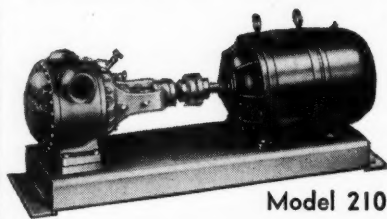
We pay postage on orders accompanied by check or money order. In California add 13c for sales tax. In Canada add 50c for excise tax.

**BUTANE-PROPANE**  
*News*

709 W. 8th St. Los Angeles, Calif.

**ORDER  
YOUR COPY  
TODAY**

# SMITH BUTANE-PROPANE PUMPS



Model 210

## STANDARD EQUIPMENT

With Leading LPG Engineers

**MODEL 210** (Above) • Capacity 50 GPM at 1750 RPM for direct connecting to electric motor.

**MODEL 211** • Capacity 50 GPM at 500 RPM for tank truck direct connected to power take-off.

**MODEL 300** • Capacity 100 GPM at 1750 RPM for direct connecting to electric motor.

**MODEL 301** • Capacity 100 GPM at 500 RPM for large transport service direct connected to power take-off drive.

**BALANCED GEAR CONSTRUCTION  
RELIEVES BEARING LOADS**

**FLUID SEALED PACKING BOX  
ELIMINATES HAZARDOUS LEAKS**

**250 LBS. WORKING PRESSURE**

Prompt Delivery on  
Complete Assemblies

*Write for literature and prices.*

**SMITH Precision Products COMPANY**

1135 MISSION ST., SOUTH PASADENA, CALIF.

## H. K. Steinfeld Joins Brunner As Assistant Chief Engineer

H. K. Steinfeld has joined Brunner Manufacturing Co., Utica, N. Y. as assistant chief engineer.

Mr. Steinfeld comes to Brunner from the Baldwin Locomotive Works where he specialized in the design of heat transfer surfaces for army tanks, such as oil coolers and radiators, as well as oil coolers and radiators of diesel-electric locomotives. He was also materials control coordinator at Baldwin, supervising the production requirement plan and the controlled materials plan.

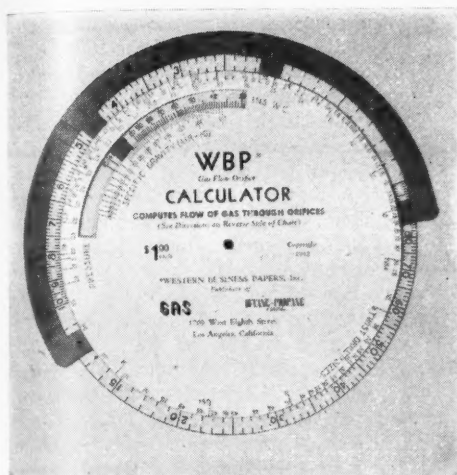


H. K. STEINFELD

Mr. Steinfeld brings to Brunner 18 years of engineering experience in the refrigeration and allied fields. In association with Chas. R. Neeson, Henry C. Heller and Henry Galson, Mr. Steinfeld was awarded the John Scott Medal Award by the City of Philadelphia, for the development of the first hermetically sealed compressor of more than fractional horsepower capacity and the first self-contained air conditioning unit for home and office as well as railway applications together with the successful application of the heat pump principle (reversed cycle).

In 1937 Mr. Steinfeld rejoined the Development Department of Carrier Corp., Syracuse, N. Y. Here he developed a series of small highspeed compressors from ¼ hp. to 5 hp. for applications as condensing units in air conditioning, walk-in refrigerators, milk coolers, deep-freeze cabinets and locker plants.

# GAS FLOW ORIFICE CALCULATOR



Invaluable to LP-Gas Engineers, Shop Men, Domestic Appliance Service Departments, LP-Gas Appliance Manufacturers, and All Others Who Need to Check or Determine LP-Gas Orifice Sizes.

- Easy to Use and Carry
- No Need for Calculations

- No Reference to Tables
- Just Set Scales and Read

Ever had to convert an appliance from manufactured or natural gas to LP-Gas and needed to know what orifice size to install? Ever had to estimate how much gas a burner could handle? Ever had to convert B.t.u. per hr. to cu. ft. per hr., or vice-versa? Ever had to know the B.t.u. input load of an appliance or industrial burner? With the Gas Flow Orifice Calculator you can quickly and accurately work out all these and many other problems.

Checks all factors relative to orifice sizing for gases from 300 B.t.u. to 3300 B.t.u. at pressures from .5-ins. to

15-ins. water pressure. Determines the flow of orifices from sizes 1 to 75 number drills, from sizes A to Z in letter drills, and from sizes 2/64 to 32/64 in fraction drills.

Priced for quantity purchase to enable you to obtain a sufficient number for everyone in your organization concerned with orifice sizing. Privilege to return within 10 days, for any reason, further assures your satisfaction. We pay postage on orders accompanied by remittance. Add 2½% sales tax on California orders; 10% excise tax on Canadian orders.

## ORDER TODAY . . .

BUTANE-PROPANE News, Publishers  
1709 West 8th Street, Los Angeles 14, Calif.

SPECIAL OFFER  
25% DISCOUNT ON  
ALL ORDERS OF 25  
OR MORE. **\$100**  
EACH

Gentlemen: Please send me . . . . . W.B.P. Gas Flow Orifice Calculators for which I am enclosing my check (or money order) for \$ . . . . .

Name . . . . . Position . . . . .  
Company . . . . .  
Address . . . . . City and State . . . . .

JANUARY-1944

## **AGA Laboratories Distribute New Research Bulletins**

Latest published results of studies in progress under the sponsorship of the American Gas Association's Committee on Domestic Gas Research are now available through the following:

Research Bulletin No. 17. Automatic Flash Tube and Pilot Ignition of Oven and Broiler Burners on Manufactured Gas.

Research Bulletin No. 19. Effect of Cold Inlet Water on Performance of Automatic Storage Gas Water Heaters.

Bulletin No. 17 is the eighth of a series of bulletins issued on Domestic Gas Research and the second devoted specifically to flash tube lighting. Various methods of automatic ignition of oven and broiler burners are reviewed together with the develop-



**ROBERTSHAW Coast-to-Coast  
Radio Programs are teaching  
millions of range prospects  
the value of Robertshaw Oven  
Heat Controls.**

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**ROBERTSHAW  
THERMOSTAT CO.  
YOUNGWOOD, PENNA.**

---

ment of flash tube applications and resulting field experiences. Results of intensive study of the effects of various factors such as size and shape of flash tubes, relation between their diameter and length, tube restrictions and many others are presented together with recommendations to be followed in the design of flash tube systems to secure best performance. Thorough scientific data is now made available for the first time for use in meeting many of the problems frequently encountered.

Representing the third research bulletin on Domestic Gas Water Heating Research, Bulletin No. 19 presents much new and original data on the effects of inlet water at a temperature slightly above freezing on the performance of gas storage water heaters. Commonly used types of storage systems were considered in this study and operating data obtained on representative models. Considerable variation was found between performance of external and internal flue type heaters. Importance of adequate flue space was definitely established and new and fundamental data presented for use in the design of heaters to insure their improved performance. Influence of the amount of flue surface in contact with cold water is fully described.

Additional information on condensation produced by very cold inlet water in the storage tank and methods usually employed for its disposal are briefly reviewed in the bulletin. Comparative efficiency figures on various heaters using very cold inlet water as contrasted to water at temperatures normally encountered in service are also presented.

Copies of these two new bulletins may be obtained from the American Gas Association Testing Laboratories, 1032 East 62nd St., Cleveland (14), Ohio, at \$1.25 each, plus postage.

*A Name  
That Stands  
for Quality*

# McNAMAR

Tanks for  
most all L.P.G.  
requirements

**McNAMAR**  
**Boiler and Tank Co.**

Tulsa, Okla.

Salem, Ill.

## National Butane Gas Co.

Memphis, Tennessee

OUR THREEFOLD OBJECTIVE:

1st, VICTORY

2nd, SERVICE

Last, PROFIT

VICTORY, by building ONLY the equipment deemed essential by the WPB; SERVICE, by remaining in the Butane Gas Business ONLY; PROFIT, the greatest profit of all, The GOOD WILL of our customers.

# Bu-Pro-Fire

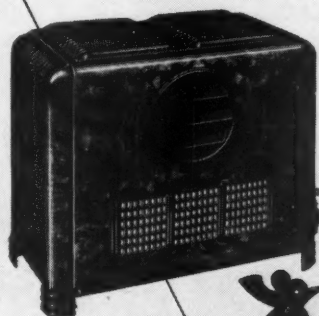
## Gas Heaters

A GOOD NAME TO REMEM-

BER FOR GREATER HEATING

EFFICIENCY WITH LIQUE-

FIED PETROLEUM GASES.



DESIGNED ESPECIALLY  
FOR L. P. GASES

**S** TENNESSEE ENAMEL MFG. CO. **3**  
NASHVILLE 9, TENNESSEE

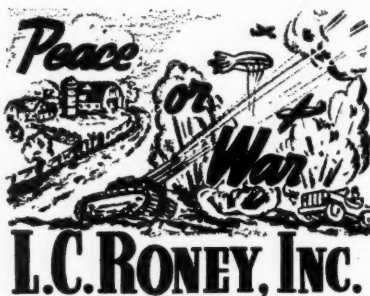
# SPRAGUE METERS

for  
PROPANE-BUTANE SERVICE

*Write for Particulars*

## SPRAGUE METER COMPANY

Bridgeport, Conn.  
Los Angeles, Calif.  
San Francisco, Calif.



meets the demands of the nation. Our plant has gone to war for the duration—but when peace comes, L. C. RONEY products for the LP-Gas industry will meet the demands of dealers everywhere. In the meantime—our stock of LP-Gas equipment is still complete.

**L.C. RONEY, INC.**  
1740 44 W 59 ST - LOS ANGELES, CALIF

## George Baldwin Becomes Roper Sales Manager

George W. Baldwin, an active figure in the Geo. D. Roper Corp., who recently severed his connections with the War Production Board, has been appointed sales manager of the company's gas range division.



GEO. W. BALDWIN

Having had a wide experience in various phases of gas range manufacture and selling, "Baldy," as he is popularly known, is well qualified for his new position.

Starting with Roper 20 years ago, he progressed through many phases of office and shop control. In 1933 he moved to Washington as the company's sales representative to cover the territory embracing Maryland, Delaware, District of Columbia, Virginia, and part of North Carolina.

### Helped Plan for PAW

When, by Government order, Roper discontinued gas range production last year, the WPB selected Mr. Baldwin to assist in formulating plans and rulings in connection with the many phases of appliance manufacturing control. He acted as Chief of the Domestic Stove Section of the Plumbing and Heating Division of WPB until last October.

In addition to carrying out numerous duties associated with the Roper war production program, Mr. Baldwin will devote his energies to production and distribution of the War Model gas range which Roper will start producing in the near future.



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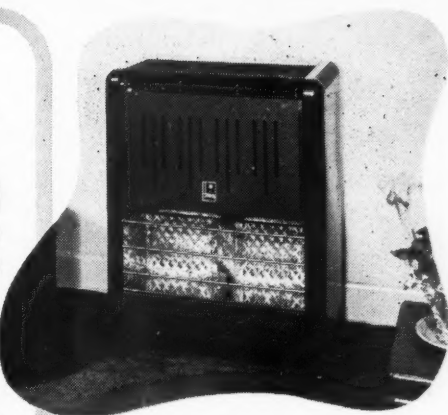
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# Lucky

## IS THE HOME

...that enjoys the comfort of a  
HUMPHREY RADIANTFIRE CIRCULATOR

Thousands of homes now enjoy the charm, comfort, dependability and economy of a Humphrey Radiantfire Circulator. Especially satisfying to every owner is the knowledge that this heater is ruggedly built to give many years of heating service. Lucky, too, will be many more homes when these fine Circulators are available again.



REMEMBER THIS



MARK OF QUALITY

**GENERAL GAS LIGHT CO., Kalamazoo, Mich.**

## BEST WISHES

### *To Our Associates and Competitors*

May our association, friendship and combined efforts continue to grow throughout this world struggle and long after the peace is won!

Cordially yours,

*Joseph S. Fagan*



## MUTUAL LIQUID GAS COMPANY

3805 W. Imperial Blvd.

Inglewood, Calif.

# K-10

## Six TIMES MORE POWER



Multiply the ordinary solenoid valve by six and you get an idea of the powerful lever action developed by General Controls' K-10. This quiet, two-wire, current failure valve is easy to install on air-conditioning, combustion or refrigeration equipment. K-10 handles air, gas, water, light and heavy oils, and steam. Positive opening and complete shut-off are assured. Designed for either normally closed or open. Available any voltage, A.C. or D.C. and up to 1 1/4" I.P.S., port sizes up to 5/8".

Ask for Catalog No. 52



### GENERAL CONTROLS

801 ALLEN AVENUE • GLENDALE 1, CALIFORNIA  
Branches: Boston • New York • Philadelphia • Cleveland • Detroit  
Chicago • Dallas • Denver • San Francisco

*Distributors for*

**REGO**  
LP GAS EQUIPMENT

**Hackney**  
BUTANE-PROPANE CYLINDERS

**GAS EQUIPMENT CO., INC.**  
2620 South Ervay Street, Dallas, Texas  
**GAS EQUIPMENT SUPPLY CO.**

## H. A. Faull Will Install Gas-Air Machines in Utah

H. A. Faull, who last month resigned as meter and regulator engineer for the Southern Counties Gas Co., Los Angeles, has joined the engineering staff of the American Liquid Gas Corp., Los Angeles, being assigned to installations and other field work throughout the United States. His first undertaking, according to a company announcement, is at Provo, Utah,



H. A. FAULL

where gas-air plant mixing machines will be installed to preheat the coke ovens of the Columbia steel plant.

Mr. Faull had served Southern Counties for 11 years, becoming affiliated with the company after his graduation from Notre Dame in 1932.

## Don't Overstock WPB-547 Forms—New Ones Coming Up

Wholesalers and retailers, who use Form WPB-547 (PD-IX) to apply for priority assistance in obtaining scarce goods, are cautioned not to order supplies of this form for more than immediate needs, the War Production Board said, Dec. 2. A simplified version of PD-IX is under consideration, and is being submitted by the Wholesale and Retail Division of WPB to appropriate industry advisory committees.

The new form, if adopted, will require less time to fill out and less time to process at the War Production Board. Any changes will be made public well in advance of the effective date, probably some time in January.

BUTANE-PROPANE *New*

For Safety  
and Economy

## ETHYL MERCAPTAN

—Purified—

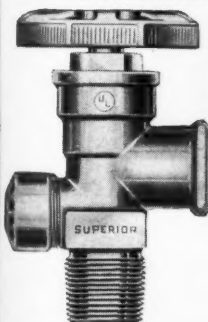
The **ACCEPTED**  
standard  
odorant  
for liquefied  
petroleum  
gases.

**MALLINCKRODT  
CHEMICAL WORKS**

ST. LOUIS

NEW YORK

## Superior LP-GAS CYLINDER VALVES



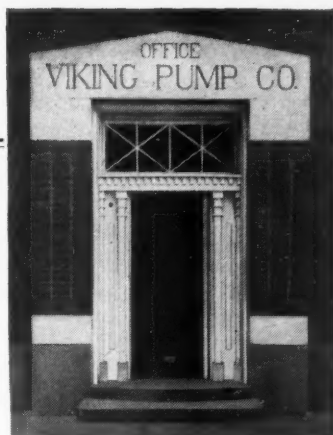
Listed as  
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Underwriters'  
Laboratories



Write for  
Bulletin LP-8  
For details on

cylinder valves; and valves and accessories  
for bulk stations; above and below ground  
installations.

**SUPERIOR VALVE & FITTINGS CO**  
1509 WEST LIBERTY AVENUE  
PITTSBURGH, PENNSYLVANIA



## APPRECIATION ... Isn't Dead

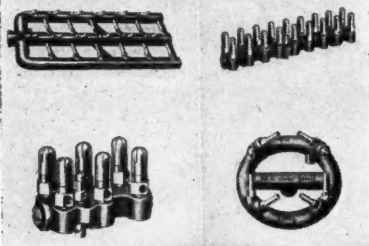
War brings many casualties. But Viking Pump Company has not and will not permit appreciation of your business to be listed among them.

It's true the Army and the Navy have been Viking's top customers since Pearl Harbor. And we're proud, of course, to be called on to do our bit toward winning the War. But we'll always remember, with deep appreciation, that it was the patronage, the confidence and the loyalty of civilian customers, cemented throughout the years, that helped Viking attain a position of leadership.

We look forward to Victory . . . to the days of Peace when we shall again be privileged to provide customary, efficient service for civilian customers, large and small, in many industries. In the meantime, keep up-to-date on Viking Rotary Pumps. Write today for our Catalog 42-G, which gives you illustrations, descriptions and complete specifications on every pump in the Viking line. It's FREE and will be sent postpaid to you by return mail.



**VIKING PUMP  
COMPANY**  
CEDAR FALLS, IOWA



## BARBER Appliance Burners

We are mainly on war production, but wherever permitted, we are supplying our regular products. Barber Units, in many standard or special shapes and sizes, are always correctly designed to fit the individual appliance, and give complete combustion on Butane-Propane or any other gas. Be ready for big post-war business—submit your special burner problems NOW to Barber engineers. Complete catalog on request.

**THE BARBER GAS BURNER CO.**  
3704 Superior Ave. Cleveland, Ohio

## For "AFCO" Tanks

Write the

**ARKANSAS FOUNDRY CO.**  
IRON & STEEL

Manufacturers of ASME U-69  
Underground Storage Tanks  
for Butane

### Arkansas Foundry Company

1501 EAST SIXTH STREET  
LITTLE ROCK, ARKANSAS

Phones

LD 66

Local 8231

## Bastian-Blessing Co. Appoints F. H. Fisher Division Manager

Frank H. Fisher, of Chicago, has been appointed manager of the welding and cutting division of The Bastian-Blessing Co., 4203 Peterson Ave., Chicago. He will supervise promotional and sales work of the company's "Rego" line and work in close cooperation with customers of "Rego" welding and cutting products.

Mr. Fisher brings to his new work valuable, practical experience. He was previously associated with American Steel Foundries, of Chicago, and also served for a number of years as district sales manager of R. Cooper Jr., Inc., General Electric Co.'s Chicago distributor. His services are available now to all users or prospective users of welding and cutting equipment to assist in their war production problems and postwar plans.

The Bastian-Blessing Co., Mr. Fisher states, is refining and improving its present products and doing research work on new models while devoting its present manufacturing facilities exclusively to the production of war material.

## H. J. Friedlander, Roper Corp., Passes Away in Cleveland

Harry J. Friedlander, a member of the sales organization of the Geo. D. Roper Corp., Rockford, Ill., since 1932 passed away in Cleveland, Ohio, Nov. 8 after a brief illness. He had been associated with W. J. Spencer in the Roper Distributing Co., handling the sales and service of Roper gas ranges in northern Ohio.

Born in Antwerp, Belgium, on April 6, 1879, Mr. Friedlander came to America, along with his family, as a refugee of the first World War.

Supervision of Roper activities in the northern Ohio area will be continued by W. J. Spencer.

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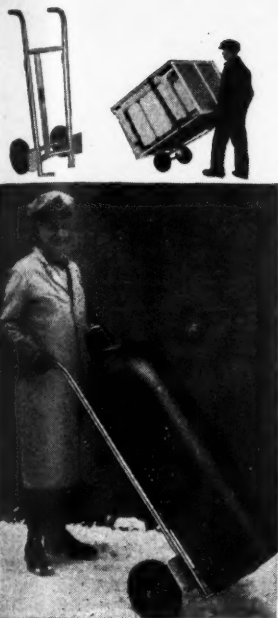
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## THOMAS Appliance Truck for Easy Cylinder Handling

- ALSO FOR STOVES, BOXES, CRATES
- PNEUMATIC RUBBER TIRES

An all purpose, one man truck for moving both cylinders and appliances. No more back-breaking lifting, either. Tapered body gives operator ample room between handles. Cradle construction accommodates any size cylinder up to 100 pound capacity. Wide Bottom flanges give support for appliances. Web strap (optional) holds appliance rigidly. Rounded handle grips permit skidding from end of delivery truck. Time saving, labor saving, cost cutting. Available now.

Write for prices and folder.



**THOMAS TRUCK  
& CASTER  
COMPANY**

4468 Mississippi River, Keokuk, Ia.

## TRUCK AND TRAILER UNITS



### *Built to Your* SPECIFICATIONS

Like the units shown here, American will build to meet your specific requirements. These Welded Pressure Tanks are designed especially for exceptionally high pressure service and are widely used throughout the Western States.

Your assurance of safe, dependable transportation facilities is the knowledge, skill and experience of American Engineers. Consultation is invited—no obligation.

**A M E R I C A N**  
PIPE & STEEL CORPORATION  
Manufacturers and Distributors  
Alhambra California

## **ODT Automotive Specialists Will Help Secure Parts**

It is announced a change of method in the aid given motor vehicle operators in obtaining automotive replacement parts is expected to put vehicles laid up for want of parts back on the roads with less time lost, the Office of Defense Transportation has stated. It will also aid in the accumulation of data needed to forestall widespread parts shortages.

Under the new procedure, ODT Maintenance Specialists are to be responsible for searching out, from parts distributors on down the line of sources, parts to fill operators' orders bearing "Certificate for Emergency Order" certification.

In addition to the requests received directly at ODT district offices, all such authenticated requests received by War Production Board automotive specialists are to be referred to the nearest ODT representative for handling. If a canvass of the ODT region in which the shortage is reported fails to turn up the part, the ODT regional office is to refer the case to the WPB regional automotive specialist in order that the producer of the part may be contacted.

## **Stanley Bent Heads Company Distributing Roadmaster Line**

Roadmaster Sales Corp. of Texas was organized in May 1943 to operate as factory sales and service for Roadmaster butane carburetion from New Mexico to Florida and portions of the Midwest. Allied lines of butane equipment were added to enable the corporation to supply every need of butane dealers. Stanley Bent is vice president and manager. He reports a very favorable acceptance of the service rendered by the corporation.

Recently in cooperation with Road-

master Sales Corp., the Truett-Worrall Spring & Aligning Co., of Dallas, Roadmaster carburetor distributors, employed P. T. Millard, of San Antonio, who has had many years of experience in petroleum equipment, to install and service Roadmaster carburetion and pumps, power takeoffs, meters, etc. Several truck installations involving this equipment have been made for butane dealers. When the dealer has a truck tank built by a Dallas fabricator, the job is turned over to Roadmaster Sales Corp., which then furnishes the equipment for pumping and metering, these being installed by Truett-Worrall Co. Therefore, the dealer who takes advantage of this service can make his equipment purchases at one source. Upon completion he can call for his truck, thereby saving considerable time and expense.

Roadmaster carburetion has been widely distributed throughout the South and Midwest. Roadmaster Sales Corp. has many distributor and dealer outlets throughout that territory. Inquiries regarding dealer and distributor rights for Roadmaster carburetion will be welcomed and given every consideration.

## **E. K. Garrison Will Manage Regional Tank Car Service**

The appointment of Edward K. Garrison as Pacific Coast regional manager of the tank car service section of the Division of Petroleum and Other Liquid Transport of the Office of Defense Transportation, with headquarters in San Francisco, has been announced by Joseph B. Eastman, Director of the ODT.

At the same time, Mr. Eastman announced the establishment of a Los Angeles field office of the tank car service section under the management of Forrest O. Moore.



## WAR TIME PUTS A BURDEN ON TRANSPORTATION

**We Can Supply Your  
Requirements For  
Propane and Butane  
Transportation Tanks**

**Also Mobile, Storage and  
Domestic Tanks of All Kinds**

### **SUPERIOR TANK & CONSTRUCTION CO.**

6155 So. Eastern Ave.  
Phone AN 4157  
Los Angeles, Calif.

## **F-R-E-E**

**A New Book for Builders  
of Butane Propane  
Equipment**

**"THE LITTLE HANDBOOK"**

contains information on

**"COMMERCIAL"**

Tank Heads and Stampings  
Tables, Steel Weights,  
Formulae

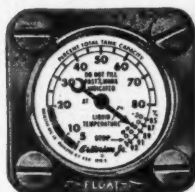
*Write for it*

**FREE**

*The* **COMMERCIAL SHEARING &  
STAMPING COMPANY**

YOUNGSTOWN, OHIO.

## TANK READINGS



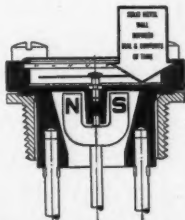
## WITH HANDS IN YOUR POCKETS

Why put up with sloppy, hazardous methods of tank readings, when Rochester LP Gauges make tank readings so safe and easy. Once installed, and installation is a matter of only a few minutes, you get accurate reading with merely a glance at the easy-to-read dial.

Sturdy, accurate Rochester L-P Gauges are safe even should you accidentally break the crystal. That's because no shaft connection passes through the gauge head. A solid metal safety floor seals it from the tank and prevents the escape of any vapor. Besides offering this safety feature the magnetic principle of Rochester L-P Gauges eliminates the need for cams, gears, links, etc., that are always a possible source of trouble. Rochester L-P Gauges are long lasting and trouble free.

Rochester L-P Gauges are available for underground or above ground systems, in various types to meet required conditions and all are Underwriters Listed.

Let our engineers show you how Rochester Gauges can simplify your operations. Consult them on any gauging problem. There is no obligation.



### **ROCHESTER MFG. CO.**

17 Rockwood St., Rochester 10, N. Y.

*Makers of Fine Gauges*

**"FOR THE TRUE INSIDE STORY"**

## New Pemco-Nordstrom Offices Opened in Atlanta

New offices of Pittsburgh Equitable Meter Co.-Merco Nordstrom Valve Co. have been opened in Atlanta, Ga.

C. C. Moore, who has been in charge of the Memphis office, is district manager. The offices are located at 411 Bona Allen Bldg., Spring and Luckie Sts.

The Memphis office will be closed at the end of December, so that all southern operations formerly cleared through Memphis will now be handled through Atlanta.

## Larger Customer Storage Lowers Delivery Costs

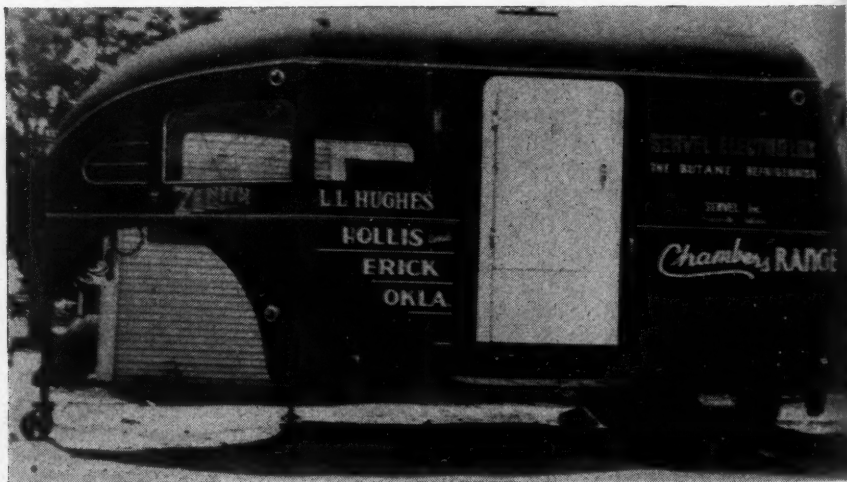
Hughes Radio and Electric Co., of Erick, Okla., has recently been granted priority under PD-397 to purchase 60 288-gal. butane systems for resale to farmers in isolated territories who have been using one-cylinder systems. These have required frequent trips to town for cylinder recharging pur-

poses, thereby using extra amounts of rationed gasoline and tires. The order for the 60 tanks has been placed with Dallas Tank & Welding Co., of Dallas.

Hughes Radio and Electric Co. operates in Beckham, Harmon and Roger Mills counties in western Oklahoma. L. L. Hughes, owner, reports that he has 1000 customers on butane and 1500 customers who have purchased Electrolux refrigerators for which he is a dealer. His company owns 50 cylinders. Among his customers for butane is one of the largest rural schools in the state.

## George G. Brown Elected President, Chemical Engineers

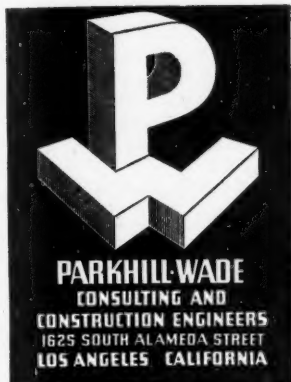
George Granger Brown, winner of the Hanlon Award in 1940, and professor of chemical engineering and chairman of the department of chemical and metallurgical engineering of the University of Michigan, Ann Arbor, has been elected president of the American Institute of Chemical Engineers for the year 1944.



This demonstration unit of L. L. Hughes, Erick, Okla., has resulted in many sales before the war. Now it pinch-hits as a delivery and service truck.

## Refineries and Plants

For Recovery of  
Isobutane  
N-Butane  
Propane



ARE YOUR FILES  
**COMPLETE**

*On The Selection Of*  
**VENTED & UNVENTED**  
**BRILLIANT FIRE**  
**GAS HEATERS**

now available under  
WPB & OPA Regulations

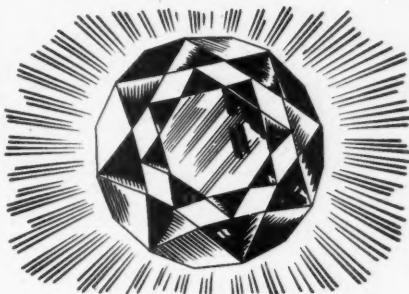
Write for illustrated Circular No. 460  
listing available models together with  
information on how they can be  
bought and sold.

**The Ohio Foundry & Mfg., Co.**  
STEUBENVILLE, OHIO

*"Quality Heating Equipment  
Since 1846"*

## SINCLAIR'S

LP-GASES — As Many Uses As  
A Diamond Has Facets



The clean flame and high heat value of Sinclair Butane and Propane are ideal for many uses ranging from drying and processing food for the home front to heat-treating, forging and welding vital metal parts for national defense.

The increasingly important isobutane is converted into high octane fuel to run pumps and electrical generating sets; fueling battle planes and battleships, furnaces and ovens, tanks, trucks and jeeps.

Sinclair Liquefied Petroleum Gases are being used to fuel the greatest fighting machine the world has ever seen . . . yet regular industrial and domestic customers are still being supplied with this vital material for heat, power and a lengthening list of chemical products, plastics and synthetics.

*Protect your fuel requirements  
by contracting with*

**SINCLAIR PRAIRIE**  
**OIL COMPANY**

Liquefied Petroleum Gas Division  
Sinclair Bldg. Tulsa, Oklahoma

# CLASSIFIED

Classified advertising is set in 6-point type, without border or display, at the rate of 10 cents per word per insertion; minimum charge per insertion \$2. Box numbers for replies count as 5 words. Count as a word each one letter word and each group of figures. Classified advertising is only accepted when payment accompanies order. Copy and payment must reach publisher's office prior to 10th of month preceding publication.

## EQUIPMENT WANTED

WANTED—PROPANE STORAGE TANK, 14,500 gallon capacity, steel minimum tensile strength 70,000 lbs. Built in accordance with A.S.M.E. Code paragraph U-69 and acceptable to Insurance Companies in accordance with Connecticut laws. Write full particulars to Box 230, BUTANE-PROPANE News, 1709 W. 8th St., Los Angeles 14, Calif.

WANT TO BUY A BUTANE TRUCK TANK complete with pump and ready for use. Nothing less than 1000 gal. tank. J. H. Emery, 708 2nd St., Garden City, Kansas.

WANTED—A TRANSPORT SEMI-TRAILER for Propane. Box 190, BUTANE-PROPANE News, 1709 W. 8th St., Los Angeles 14, Calif.

## EQUIPMENT FOR SALE

FOR SALE—20,000 FEET PRE-WAR quality Goodrich, Goodyear and Manhattan hose. Sizes  $\frac{1}{2}$ ",  $\frac{3}{4}$ ", 1",  $1\frac{1}{4}$ ",  $1\frac{1}{2}$ ", 2". AA-1 rating required. Service Equipment Company, 726 Girod St., New Orleans, Louisiana.

WE BUY—SELL—EXCHANGE ANYTHING in used Petroleum gas equipment. ALL SIZES—Complete Bulk Plants, Bulk Tanks, Wet and Dry Cylinders, Regulators, Valves, Meters, Truck Tanks, etc. Box 495, Syracuse, N. Y.

## Commercial Vehicles May Use Truck-Type Camelback Recaps

The recapping of tires for commercial vehicles with truck-type camelback was removed from rationing Dec. 1, the Office of Price Administration has announced. This action was taken at the request of the Office of the Rubber Director to encourage a more effective use of recapping service, thereby contributing

to tire conservation by reducing the demand for replacement tires. The step is now possible since adequate stocks of synthetic rubber are being made available by the Office of the Rubber Director for increased camelback production.

The use of truck-type camelback will be restricted still to commercial vehicles only.

## TANKS

*In the Pacific Northwest*  
See

**King Bros., Inc.**

**For Your Tank and  
Cylinder Requirements**

3500 S. E. 17th Ave., Portland, Ore.

## HOT Water UNITED STATES

*Automatic Water Heaters*

Approved by A.G.A. for  
Liquefied Petroleum Gas

**United States Heater Co.**  
COMPTON, CALIFORNIA

## Victory Is Everyone's Job ELECTRIC & CARBURETOR ENGINEERING CO.

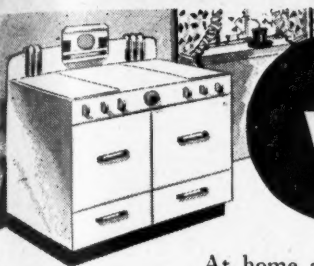
*"Pioneers of the Butane Industry"*

For the duration of the war we are engaged 100% in manufacturing AIRCRAFT PRECISION PRODUCTS. After the war we will again present our regular lines and solicit your patronage.

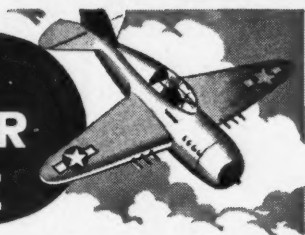
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